STATOIL

Final Drilling Report
PL 233, WELL 7131/4-1

UPN
LET OPR
Harstad, September 2005

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Final Drilling Report
Well 7131-4-1
Guovca, PL233

EPDS: 7131/4-1 nr: 011

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Title:
Final Drilling Report **Well 7131-4-1** **Guovca, PL233**

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1 Introduction

The well was designed as a vertical well with as few sections as possible; 36", 9 7/8" pilot hole, 17 ½" and 8 ½". A 9 7/8" pilot hole was drilled and opened to 17 ½" before installing the 13 3/8" surface casing above the pressure build-up zone. An 8 ½" hole was drilled to the well TD. The well was permanently plugged and abandoned.

1.1 Well data record

Well name:	7131/4-1	
Type of well:	Exploration	
Prospect:	Guovca	
Country:	Norway	
Area:	Barents Sea	
License:	PL 233	
Licensees:	Statoil ASA	50 %
	Norsk Hydro Produksjon AS	35 %
	Eni Norge A/S	15 %
Drilling unit:	Eirik Raude	
Type:	Semi submersible drilling rig	
Water depth:	331 m MSL	
Air gap:	25 m	
TD:	1295 mMD RKB / 1295 mTVD RKB	
On license:	31.03.05	
Rig release:	18.05.05	
Formation at TD:	Kobbe Formation of Triassic age	

Surface:

Geographic co-ordinates:	71° 41' 40.98" N 31° 00' 40.96" E
Datum/Spheroid:	ED-50, INT 1924
UTM:	UTM Zone 35, CM 27° E 7 959 769 m N 640 535 m E
Seismic location:	Seismic survey ST9802, Inline 1792, Crossline 6001

All depths in this report refer to mTVD RKB (Rotary Kelly Bushing) unless otherwise stated.

1.2 Well objectives

The objective of well 7131/4-1 was to prove hydrocarbons in the Fruholmen Formation of Norian age (Garja 1 and Garja 2 sandstones) and in the Snadd Formation of Carnian age (Guovca sandstone).

1.3 Result of the well

Well 7131/4-1 was spudded in a water depth of 331 mMSL and drilled to a total depth of 1295 mTVD RKB. TD of the well was set in the Kobbe Formation. No shallow gas was observed.

No hydrocarbons were proven in well 7131/4-1. The observed stratigraphy was close to the prognosis, except for the presence of the Stø Formation. This sandstone interval was not expected to be present at the location. One core was cut in the Garja 1 sandstone and one core was cut in the Guovca sandstone, as planned. MDT water samples were collected in the Stø and Guovca sandstones.

1.4 Drilling summary

1.4.1 Casing

Casing	Shoe depth [mMD / mTVD RKB]	LOT / FIT [Equivalent mud weight]
30"	403.5 / 403.5	NA
18 ¾" WH x 13 3/8" casing	799.5 / 799.5	LOT 1.67 g/cm³

1.4.2 Drilling fluids

Section	Section TD [mMD RKB]	Maximum mud weight [g/cm³]	Mud type
36"	407.7	1.03	Seawater / high visc. sweeps
9 7/8" pilot hole	811	1.03	Seawater / high visc. Sweeps
17 1/2"	806	1.03	Seawater / high visc. Sweeps
8 1/2"	1295	1.33	Glydril (99% KCl/Pac/glycol)

2 Dispensation from regulations/requirements.

None.

3 Health, safety, environment and quality (HSE&Q)

3.1 Incident Reports (RUH's)

A total number of 40 RUH's (Incident Reports) were registered while drilling the Guovca well.

3.1.1 Comments to the reports

Of the above mentioned reports, there were:

- 2 LTA's
- 1 red incident
- 3 yellow incidents
- 1 spill to sea
- 3 medical treatments
- 2 first aid incidents
- 0 falling objects and 0 potential falling objects incidents
- 801 Care cards reported

The two LTA's and the onw red incident was synergy no. 308144, two persons injured when ladder broke.
First aid incidents: person hit his leg against doorframe, person slipped and fell on riser deck.
Medical treatments: one pinched hand with torque tool, twisted ankle stepping down from step, twisted ankle on drill floor.
The tree yellow incident were: accidental discharge to the sea of approximately 1000 litre hydraulic oil from the BOP carrier, MWD failure in the 9 7/8" pilot hole, leaking cement plug during P&A operation.

3.2 Synergy reports – Other non-conformances and quality.

The following transcript shows the quality related non-conformances reported in Synergy that was considered as serious.

Synergy No.	Date	Title
308178	02.04.2005	Failure of Anderdrift inclinometer.
308420	03.04.2005	Partly lost communication due to weather conditions
308690	06.04.2005	MWD failure.
311297	06.04.2005	Second back-up tool (MWD MPR) for the 9 7/8" pilot hole had not been sent from vendor.
311311	08.04.2005	17" string stab had not been sent from vendor.
309242	09.04.2005	During reaming top drive came in contact with stand of pipe in hydraracker.
309605	12.04.2005	Hydraulic fluid spill to sea from BOP carrier system.
314417	06.05.2005	Drill pipe stand fell out of finger board.
321340	14.05.2005	P&A leaking of cement plug #2.
322278	14.05.2005	Unable to supply cement from silo A to cement unit/surge tank.

3.3 Experience Summary

Section	Experience (subject and description)	Immediate solution	Solution recommended for future
36”			
	Synergy 308178 (Closed) - 02.04.2005 - Non Conformance - Experienced inconsistent readings of survey data from Anderdrift tool. Checked tool against TOTCO while WOW, OK. Re-surveyed hole when RIH, new surveys were 0.25°/0.75° compared to 2.25° previously experienced.	Drilled to 36” TD. Rig downtime: 1.5 hrs	Evaluate use of MWD DIR instead of Anderdrift.
	Synergy 308649 (Closed) – 04.04.2005 – Non Conformance – 500 ton bails not able to fit 30 elevator ears.	Spent time to locate certified slings for lifting conductor to drill floor. Rigged up 350 T drilling bails and 2 m 50 T slings. Rig downtime: 1.0 hrs.	Improve job execution on rig floor – improve operational procedures.
	Cemented the 30” conductor in tension due to 0.75° inclination at TD of the 36” section.	Managed to adjust the bulls-eyes inclination on 30" Conductor housing to 0.5° by pulling the rig 2 m aft.	After releasing the WHH-RT the bulls-eyes reading were 0.5° / 0.0°. Cement conductor in tension when inclination in hole is above limit.
9 7/8”			
	Synergy 308690 (Closed) – 06.04.2005 – Non Conformance – MWD failure. Was not able to communicate with MPR from the start of the section. POOH, attempted to establish el. communication with tool at surface, no success. PU back-up tool, but crossed threads.	Were able to MU BHA consisting of primary MPR together with back-up APX tool. Rig downtime: 11.5 hrs.	Improve procedures for MU tool when raining. Expecting water intrusion in tool connection to have caused the problem.
17 1/2”			
	Used steel PDC 9 7/8” x 12 ¼” HO between 8” bullnose and the 12 ¼” x 17 ½” HO		Had none previously experience with this type HO. The PDC HO was run without any wear, the standard HO came out totally worn out. At locations where boulders are not expected, PDC type HO should be evaluated used.
	Problems experienced after cement unit was modified to be environmentally friendly. The drains had been blocked off.	This led to large amounts of cement left in suction lines, inadequate cooling of plunger pumps, unable to wash the displacement tanks.	Better plans for changing layout / procedures for the cement unit must be carried out.
8 1/2”			
	Sticky cuttings blocking the screw-conveyers were experienced during drilling the 8 ½” section.	Flushed the conveyers with water and air to keep operation going.	Re-build the cuttings transport system for the next operation in the Barents Sea.
P & A			
	Experienced severe problems on cement unit setting plug #3. Samples of cement collected from the surge tank and from silo A showed signs of moisture and presence of cement lumps.	Managed to continue setting of plug #3. .	

3.4 Time distribution 7131/4-1

Total time planned (p50)	22.5 days
Total time (included 432 hrs suspension time)	49.7 days
Total time	31.7 days
Total D-time	59.5 hrs
Total W-time	82.5 hrs
Total Q-time	0.0 hrs
Waiting on weather (WOW)	66.0 hrs

Ops. Factor: $= \frac{Total\_time - Down\_time - WOW}{Total\_time - WOW} * 100$	91.4 %

Fig. 3.1 Time distribution Guovca

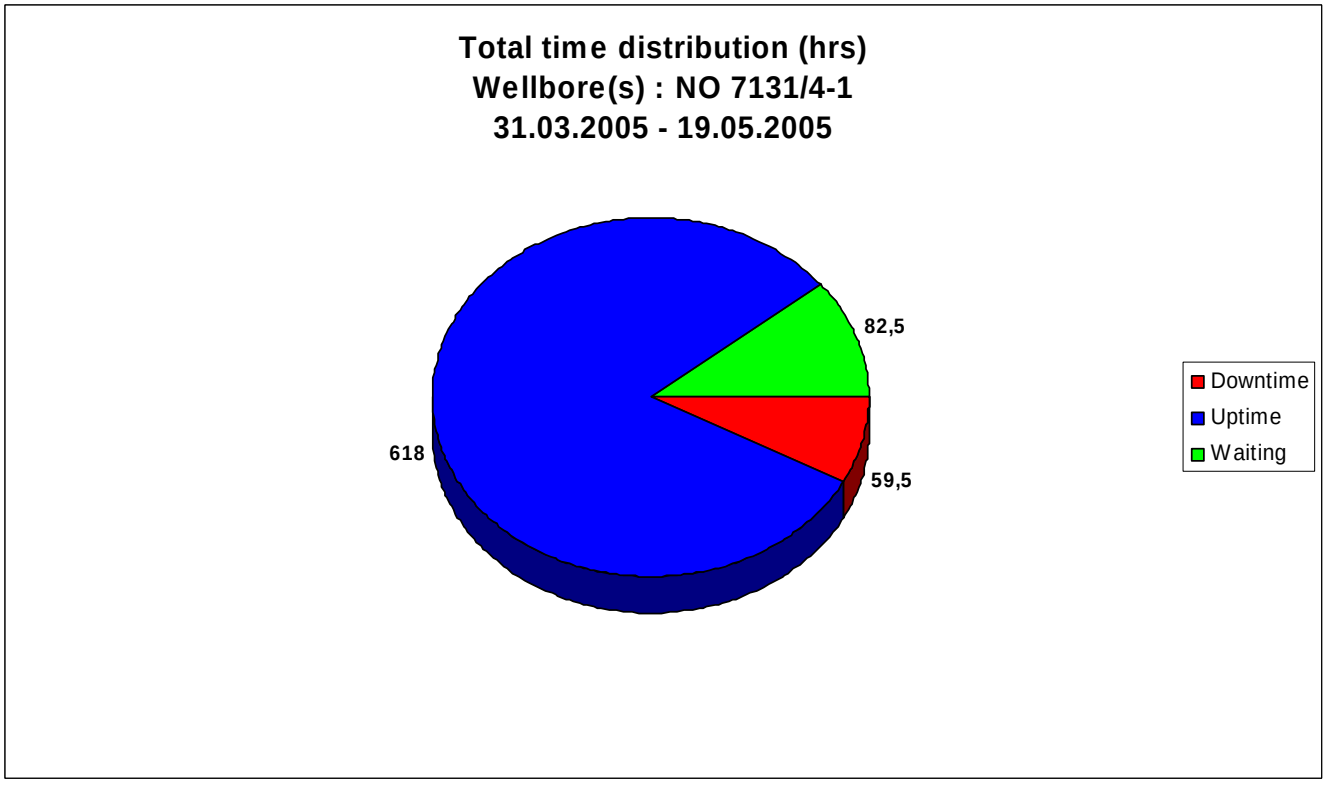


Fig. 3.2 D-time distribution by main activities

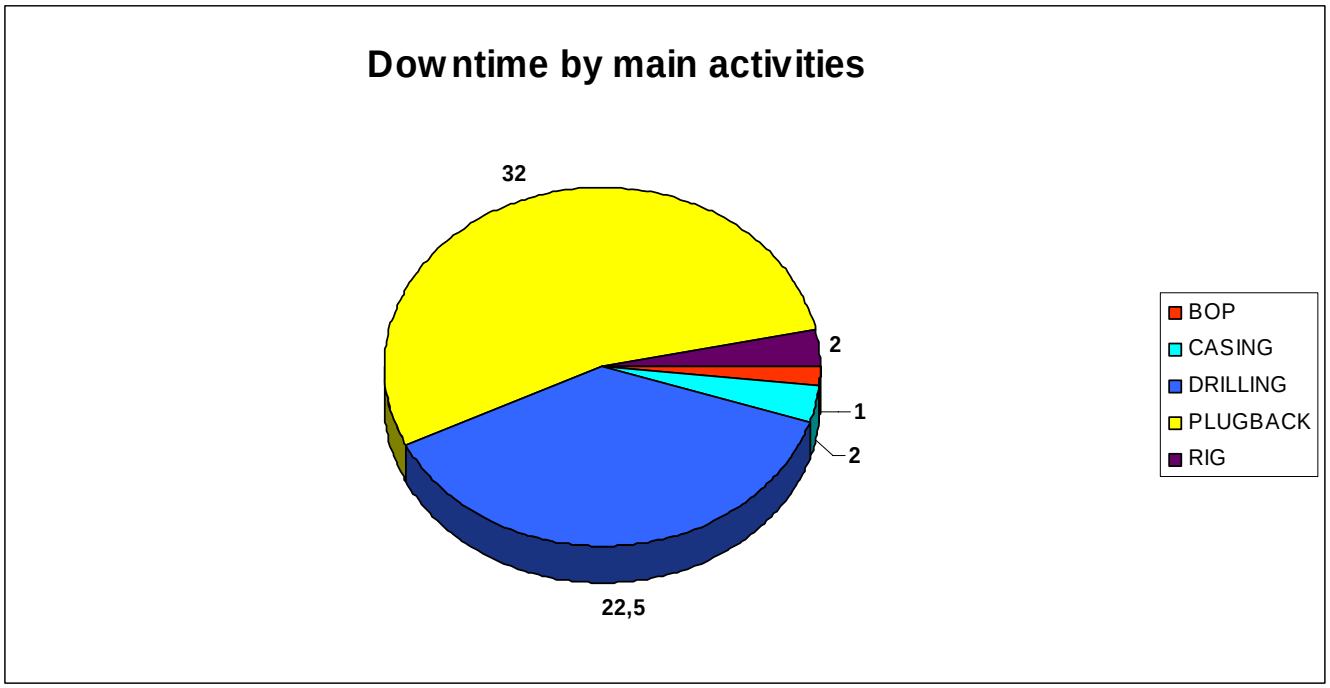


Fig. 3.3 D-time distribution pr Company in hours

Company	D-time description	D-time [hrs]
Statoil	Cement plug #2	32.0
BHI (MWD)	MPR and crossed threads	13.5
BHI (DDR)	Anderdrift tool	1.5
Ocean Rig	Bolt on DDM (7.0 hrs) and minor incidens	12.5
N/A	Operatios suspended due to hydraulic oil spill to sea	432.0

4 Drilling operations report

4.1 Rig move and positioning

4.1.1 Summary

The semi-submersible rig Eirik Raude was moved from the Norsk Hydro Produksjon AS operated Oblix well in the Barents Sea to the Guovca location 7131/4-1. The sailed distance of 191 nm was made in 28.5 hrs giving an average transit speed of 6.5 knot. Total transit time included anchor handling, cargo loading and deballasting rig was 79.5 hours (0.5 hrs down time and 24.5 hrs WOW included).

At location eight anchors were run and four marker buoys were deployed. Meanwhile, service and maintenance on rig equipment were carried out as well as preparing and start running down with the spud BHA.

4.1.2 Experiences/Recommendations

None.

4.2 Drilling top hole section

4.2.1 Summary

The 36" hole was drilled from sea bed at 356 m to section TD (17 ½" hole to 407.7 m, 36" hole to 403.5 m) using sea water and 5 m^3 high visc pills every 15 m drilled. The BHA consisted of a re-used 17 ½" MX-3 bit (Hughes Christensen), a 26" x 36" two stage hole opener and an Anderdrift tool (vertical inclination indicator).
The sea bed was tagged without circulation. Experienced problems with the inclination tool during function testing. Repeated the test by using various circulation parameters. Found tool working by using the following survey sequence; Circulate at 5000 lpm, pumps off for 4 minutes, 10 seconds flow build up period and 1500 lpm survey flowrate.
Drilled 36" hole down to 386 m, inclination survey readings at 371 m and 386 m were both 2.25°. Reamed the hole three times and inclination readings came down to 2.0°. Pulled out to above sea bed due to bad weather and WOW. Meanwhile, performed Totco and Anderdrift survey. Both systems were reading 0.5°. Re-entered the hole and repeated inclination surveys, this time showing 0.25° at 370 m and 0.75° at 386 m.
Drilled 36" hole to TD, reamed stand once and performed inclination survey to 0.75°. Low weight on bit was maintained to avoid building angle, giving an ROP at 3.7 m/hr. Swept hole with 25 m^3 high visc mud and displaced well 1.3 times to 1.35 g/cm^3 mud. As prognosed, no boulders were encountered in this section. No overpull was experienced when pulling out of the hole.

Typical drilling parameters were:
Flow: 5000 lpm, WOB: 1-4 mt, RPM: 70-130 s^{-1}, Pressure: 130 bar.

Made up and ran 4 joints of 30" conductor string to 403.5 m. Cemented conductor in place with 3 metres stick up on 30" WHH. Held conductor in tension while the cement set up to reduce the overall inclination. The cement slurry used for this operation was Tuned Light, 1.52 g/cm³ at surface, predicted to 1.54 g/cm³ down hole due to compression. Total excess cement used was 150 %. After releasing the wellhead housing running tool, the inclination on bull's-eyes were 0.0° and 0.5°.

Drilled out the 30" conductor shoe with a dedicated clean-out assembly consisting of 9 7/8" bit x 12 ¼" HO x 17 ½" HO x 26" HO in order to centralize the 9 7/8" pilot hole. Drilled out and cleaned the rat hole down to 411 m in 3.0 hours. Pulled out of hole and laid down the BHA. Made up and ran in to TD with 9 7/8" pilot hole BHA.

4.2.2 Experiences/Recommendations

Anderdrift inclination tool.
The Anderdrift tool displayed inconsistent readings down to 386 m. POOH for WOW and tested the Anderdrift tool against Totco, both tools gave same reading. Re-logging at previous survey depths while running in hole, the inclination readings were found acceptable, from 0.25 to 0.75° instead of 2.0°-2.25°.

ROP and weight on bit.
The 48.7 m drilled was made in 22 hrs giving an overall progress at 2.2 m/hr (bit ROP 3.7 m/hr.) Due to the high inclination surveys recorded from sea bed to 386 m, low weight on bit and reaming the hole was prioritized in order to achieve acceptable inclination.

4.3 Drilling 9 7/8" pilot hole

4.3.1 Summary

The pilot hole was drilled with a BHA consisting of 9 7/8" (MXC09, Hughes Christensen) Bit, MWD (MPR-APX-DCP) and 104 m of 8 ¼" drill collars.
Drilled 9 7/8" pilot hole from 411 m to 413 m where communication to the MWD tool was lost. Pulled out and attempted to establish electric communication to the tool without success. Attempted to replace MPR sub and APX tool, but crossed threads on connection. MU primary MPR sub with backup APX tool and RIH. Drilled 9 7/8" pilot hole from 413 m to TD at 811 m. As predicted, no shallow gas were observed. The drilling progress was good (400 m gained in 22.5 hrs) with an ROP on bit of 23.6 m/hr. Only minor tight spots were observed (12 mt) pulling out to pick up the 17 ½" HO assembly.
Inclination through the section varied from 0.11° at 459 m to 0.65° at 750 m, at section TD the inclination was 0.53°. The 9 7/8" bit came out rated 2-2.
Used sea water and 5 m^3 high viscosity pills every 15 m drilled as drilling fluid. At section TD, swept the well with one 10 m^3 high viscosity pill and displaced 1.3 times to 1.35 g/cm³ mud.

Typical drilling parameters:
Flow: 3450 lpm, WOB: 5-11 mt, RPM: 112-165 s^{-1}, Pressure: 148 bar, Torque: 3-6 kNm.

4.3.2 Experiences/Recommendations

Back-up MWD tools.
During the planning phase of this well, mobilization of two back-up MWD tools had been emphasized. During start-up of this section, only one back-up tool had been sent to the rig. Lack of communication from BHI onshore and incorrect inventory control at rig-site, led to a situation where the operation could have been stopped when one tool failed and the back-up tool was damaged during make-up. Close logistic control regarding long lead time items is of outmost importance drilling in the Barents Sea.
The strategy of having three MWD tools on the rig in the Barents Sea is recommended.

4.4 Drilling 17 1/2" section

4.4.1 Summary

The 9 7/8" pilot hole was opened to 17 1/2" from 411 m to 811 m (17 ½" hole to 805.5 m) with a BHA consisting of 8" bullnose x 12 ¼" PDC HO x 17 1/2" HO. The primary purpose of the BHA design was to open the 9 7/8" pilot hole without sidetracking.
From 411 m to approximtely 600 m the WOB was maintained at 3-6 MT resulting in a decreasing ROP from >12 m/hr to <6 m/hr. From this depth and to section TD the WOB was increased to 20 ton and the ROP increased to >18 m/hr. The bit/HO ROP for this section was 13 m/hr. At TD the well was swept with one 30 m^3 high visc pill and displaced 1.3 times to 1.35 g/cm^3. Pulled out of the hole without any problems.
Inclination through this interval was maintained as for the pilot hole. The 12 ¼" PDC HO came out rated: 1-1, whilst the 17 ½" HO was rated 7-8.

Typical drilling parameters:

Interval:	411 - 600 m	600 - 811	m
Flow:	5000-6300	5500-6000	lpm
WOB:	3-6	5-20	mt
RPM:	80-120	80-110	s^{-1}
Pressure:	155-216	160-215	bar
Torque:	3.5-6.9	2.0-15.0	kNm

The 13 3/8" casing was run whitout any problems and set at 799.5 m. The surface casing was successfully cemented to sea bed with full returns. Bumped top wiper plug with 100 bars, 70 bars above FCP. Released casing running tool and POOH.

While moving the BOP to below rotary a hydraulic supply line to the BOP trolley bursted and approximatly 1 m^3 hydraulic oil was accidentally discharged to sea. This caused Statoil to suspend the operation for a total of 432 hrs. The incident was investigated both by Ptil and SFT in addition to Statoil internally. After performing investigations, HAZID, HASOP, neccessary authorization was obtained and the operation resumed.

RIH with 8 ½" BHA and tagged top of cement at 772 m. Displaced well to 1.03 g/cm^3 sea water / KCl brine and drilled out the 13 3/8" casing shoe, rat hole and 3 m new formation. Spotted 10 m^3 high visc pill on bottom and performed leak-off test to 1.67 g/cm^3 EMW.

4.4.2 Experiences/Recommendation

Drilling parameters.
Heavy duty hole openers to be run at manufacturer's recommendations for drilling parameters.

PDC hole opener.
A 9 7/8" x 12 ¼" steel PDC HO was run between the 8" bull nose and the 17 ½" HO. The reason for including this component was to prevent wear on the 17 ½" HO shaft, reducing the possibility for twist off. Using the PDC hole opener was a success, insignificant wear was found (rated 1-1) comparedt to the conventional 17 ½" hole opener which was totally worn out.
At locations where boulders are not expected, this type of hole opener may be recommended.

4.5 Drilling 8 1/2" section

4.5.1 Summary

Displaced the well to 1.33 g/cm³ Glydril (99% KCl) water based mud and drilled 8 ½" hole from the 13 3/8" casing shoe at 799.5 m to core point #1 at 915 m. The drilling progress was controlled to maximum 15 m/hr due to geological interpretation. Bottoms up were circulated at several depths for samples and biostratigraphical verification.

Core #1 was cut from 915 m to 949 m where the core jammed off. The core was cut in 2.5 hrs, recovered 29.1 m (85.6 %).

The interval from 949 m to core point #2 at 1070 m was drilled with a controlled ROP at 15 m/hr.

Core #2 was cut from 1070 m to 1118 m where the core jammed off. The core was cut in 6.5 hrs, recovered 47.9 m (99.8 %).

Drilled 8 ½" hole from 1118 m to TD at 1295 m in 12.5 hrs at controlled ROP due to capacity restrictions in the cuttings handling system. The ECD readings recorded were: 1.43-1.44 g/cm³.

Typical drilling / coring parameters:

Interval:	799.5-915 m	915-949	949-1070	1070-1118	1118-1295	m
Flow:	3280	1000	3280	1000	3270	lpm
WOB:	2-4	1-5	1-3	3-10	1-6	mt
RPM:	80	75	70-110	90-100	120	s^{-1}
Pressure:	150	40	152	50	166-171	bar
Torque:	2-6	4-8	3-6	3-8	3-6	kNm

Except for some slip-stick at the initial part of the 8 ½" section no drilling or hole problems were experienced. Hole condition was reported good during the entire operation, electrical logging included.

The mud system was run as per programme maintaining the KCl in the upper range. The sulphate concentration was kept well below the programmed maximum level of 200 mg/l without any problems.

The wireline programme was performed without any problems.
Run #1: PEX-DSI-GPIT.
Run #2: MDT, pressure point and water samples.
Run #3: VSP-GR.
Run #4: CST.

4.5.2 Experiences/Recommendation

Sulphate content in mud.
On previous wells drilled with this mud system, maintaining the sulphate content according to programme (<200 mg/l) have been a problem. During this section, the maximum level recorded in the active mud system was 143 mg/l. The basis for achieving the low sulphate content was made by drilling out the shoe and performing LOT with a separate fluid system, drill water weighted to 1.03 g/cm³ with 99% KCl brine. It is recommended to use this procedure on future wells if feasible.

Cuttings handling.
For the drilling campaign in the Barents Sea a zero discharge regime for drill cuttings prevails. Collecting and handling drill cuttings at rig site, when using water based mud, was a problem in spite of thorough planning and small amounts generated. The single screw conveyors from the shakers to the cuttings buffer tank was not fit for purpose and restricted the ROP to 15 m/hr. The CBP (cuttings blower pump) system blowing the cuttings from the buffer tank to the holding tank / supply boat, functioned according to expectation (capacity ~10 m3/hr).
It is strongly recommended to modify the cuttings transport system from the shakers to the cuttings buffer tank for future wells, when working under this type discharge regime.

4.6 Permanent P&A

4.6.1 Summary

Ran in hole with tapered string (320 m 3 ½" DP, 580 m 5" DP and 5 ½" DP to surface) to plug back open hole, was not able to pass 1280 m. Circulated bottoms up from this depth prior to cementing.

Set cement plug #1 in open hole from 1280 m to 1015 m. Pulled out dry to 984 m and circulated hole. No cement in returns, maximum pH at 11.8. Ran in to 990 m.

Set cement plug #2 in trasition zone from 990 m to 743 m with top of cement 56 m inside the 13 3/8" surface casing. Began to pull wet out of hole on stand #3 and had mud flowback. Attempted to pump through drill string (maximum 300 bars) without any success. Pulled string out of hole and found all the 3 ½" DP cemented. Ran in hole with 5" mule shoe, tagged cement at 743.5 m and set down 5 mt weight on plug. Attempted to pressure test cement plug to 100 bars, but

pressure bled off to 67 bars. Pulled out of hole and laid down stinger. Ran in hole with open ended 5" DP.

Set cement plug #3 inside the 13 3/8" casing from 743 to 610 m. Pulled out to 600 m, pulled out wet on stand #3, and circulated bottoms up. Diverted out 35 m^3 cement contaminated mud from the active system. Pulled out of hole and prepared to squeeze plug #3. Aborted this operation because the cement set up while cleaning cement unit.

Made up 13 3/8" EZSV dressed as bridge plug. Ran in hole to 600 m and pressure tested cement plug #3 in stages to 100 bar. Set bridge plug at 600 m, used 20 ton over pull to shear out running tool. Pressure tested bridge plug in stages to 100 bar (70 bar above 13 3/8" LOT), displaced surface lines and well to sea water.

Set surface cement plug #4 from 600 m to 400 m and pulled out of hole.

Retrieved wear bushing (23 ton over pull), rigged up and pulled riser and BOP.

Made up MOST tool, ran in and cut 20" x 30" casing at 361 m. Parameters: Flow: 2700-3400 lpm, Pressure: 81-146 bar. Pulled casing free without any overpull, POOH and laid down MOST tool and the cut casing. Meanwhile, performed sea bed survey with ROV, deballasted rig and pulled all 8 anchors.

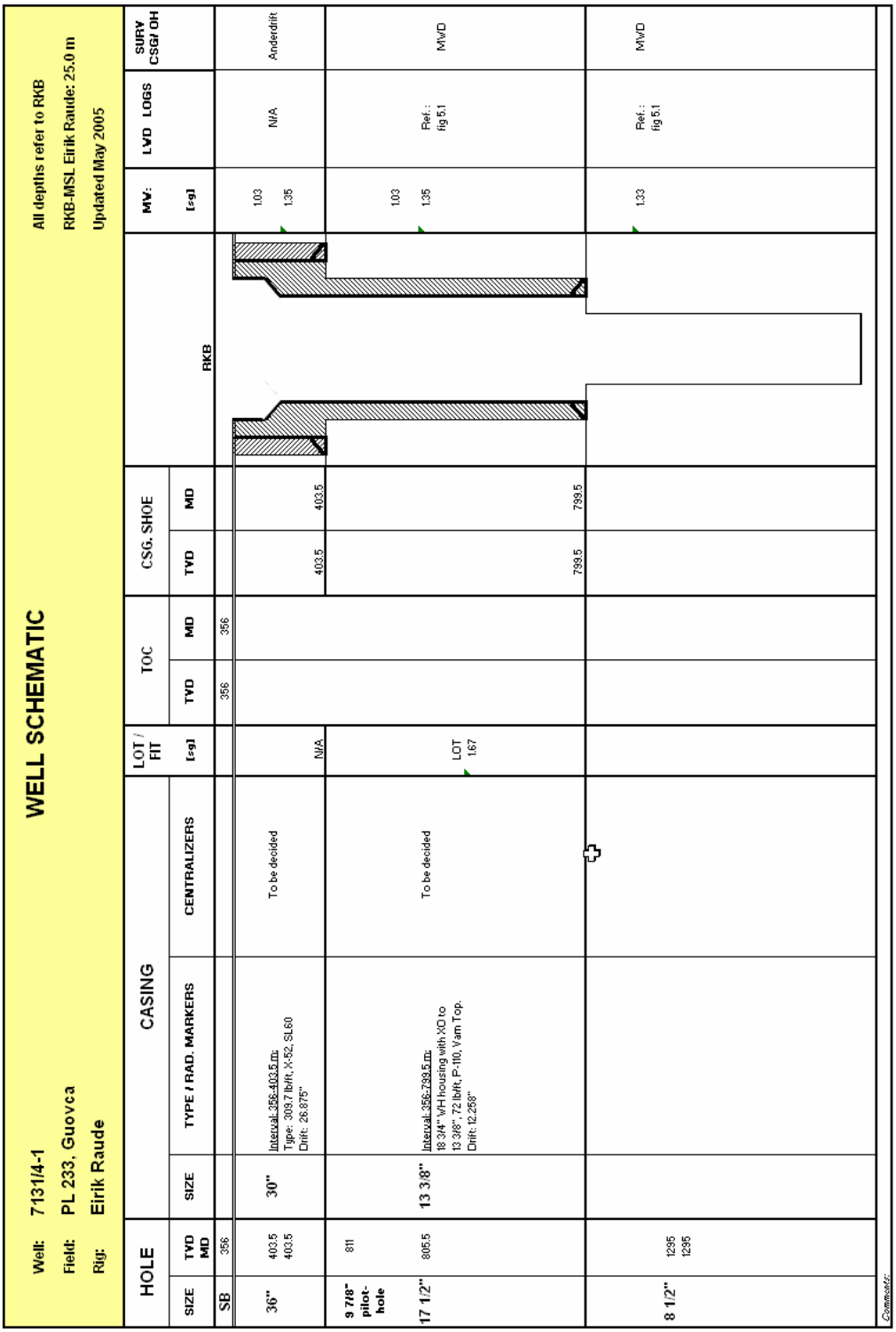
The rig was transferred to Tulipan operations, well 6302/6-1, May 18th, 2005 at 22:00 hours.

4.6.2 Experiences/Recommendation

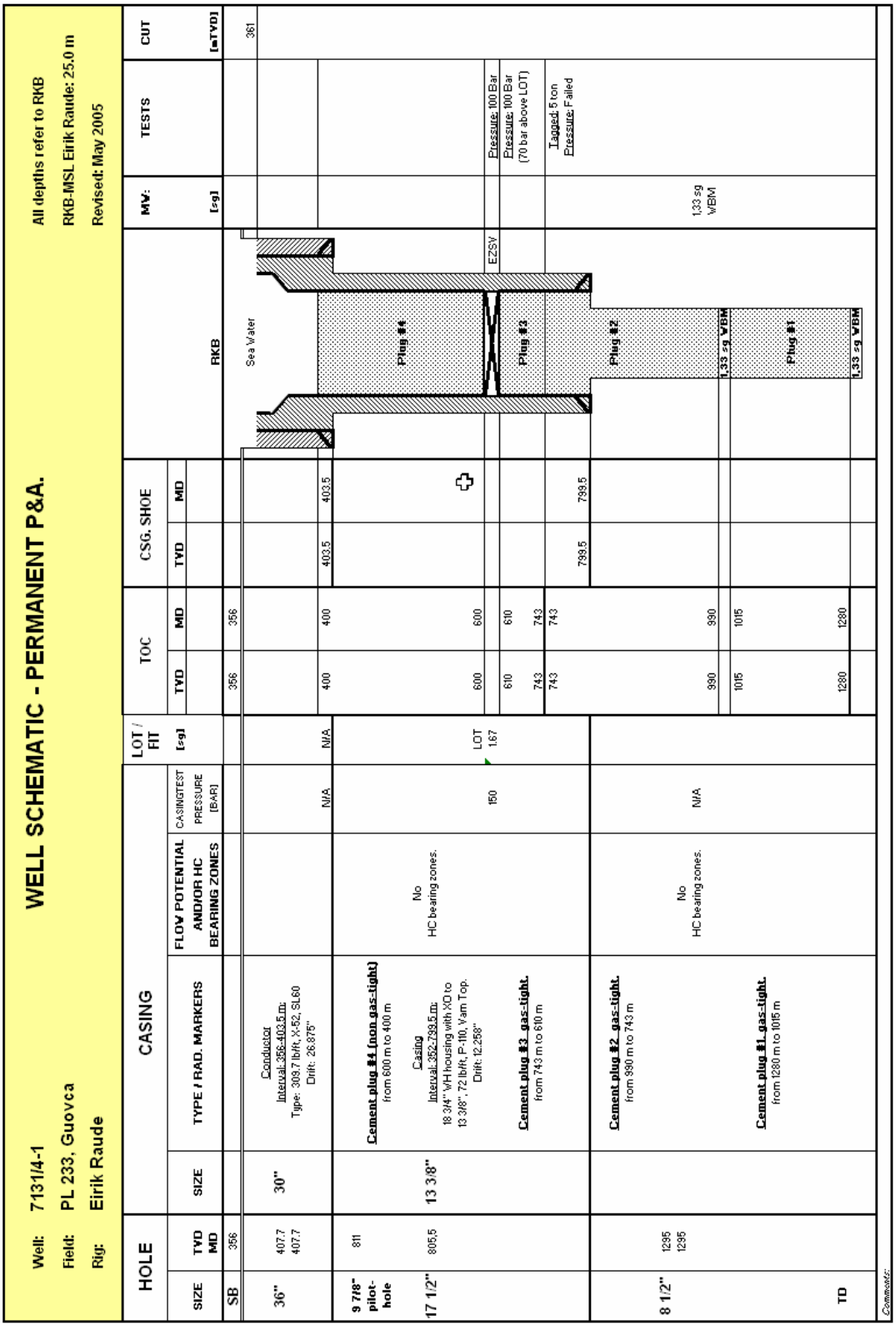
Cement plug #2 failed.
The reason why cement plug #2 failed is several. Lack of satisfactory bonding between casing wall and the cement; the cement plug was supposed to have reached 100 m into the 13 3/8" casing, wrong cement silo used, the upper part of the plug may have been contaminated.
The procedure for mixing and setting the plug was not in accordance with reccomendations given.

4.7 Figures and tables

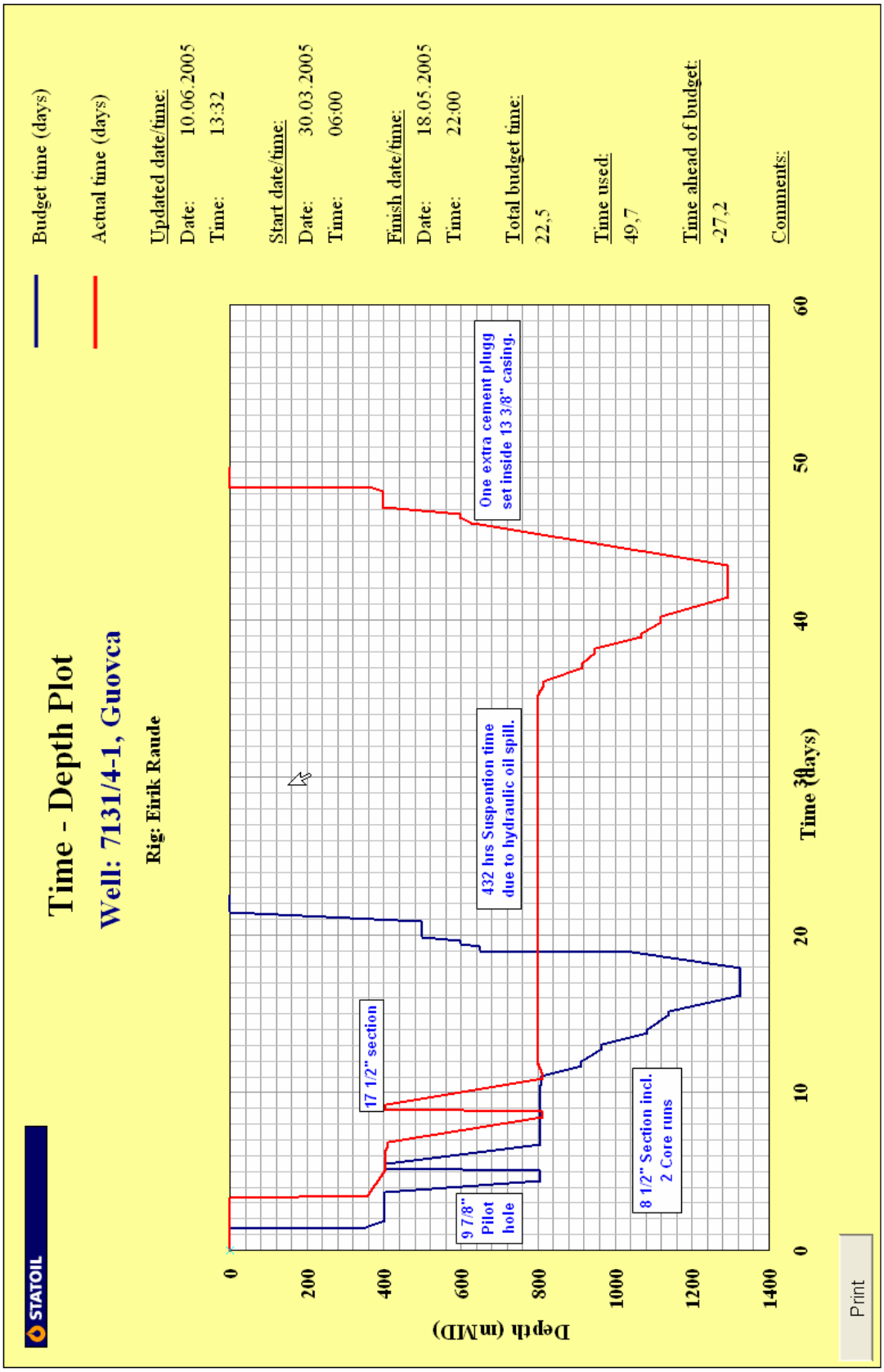
4.7.1 Well Schematic



4.7.2 Well Schematic – Permnent P & A



4.7.3 Time/depth curve



4.7.4 Timeplanner

Project planner — **Guovca well 7131/4-1** — **T.O233A_AP.MAIN**

		Start time	End time	Budget time hrs	Acc Budget days	Tech limit hrs	Acc tech days	Planned time hrs	Actual time hrs	Acc actual days	Down time	Description	Companies
		30.03.05 06:00	**02.04.05 13:30**	**33,0**	**1,4**	**29,0**	**1,2**	**29,0**	**79,5**	**3,3**	**0,5**	**MOVE [NO 7131/4-1]**	
	1 Wed	30.03.05 06:00	31.03.05 15:30	13,0	0,5	11,5	0,5	11,5	33,5	1,4	0,0	1 Move rig from Oblix location to Guovca location. (197 Nm/6 knot)	OR
	2 Thu	31.03.05 15:29	31.03.05 15:30	0,0	0,5	0,0	0,5	0,0	0,0	1,4	0,0	3 If not already done: MU cement stand and 30" conductor housing. R/B same	OR,Hall,DQ
	3 Thu	31.03.05 15:30	02.04.05 13:30	20,0	1,4	17,5	1,2	17,5	46,0	3,3	0,5	2 Set anchors and ballast rig. MU 36" BHA and prepare to drill 36" hole.	OR
		02.04.05 13:30	**06.04.05 03:00**	**56,0**	**2,3**	**50,0**	**2,1**	**50,0**	**85,5**	**3,6**	**2,5**	**36" [NO 7131/4-1]**	
	4 Sat	02.04.05 13:30	02.04.05 18:00	2,0	1,5	1,5	1,3	1,5	4,5	3,5	1,5	4 Run 36" BHA down to sea bed.	OR,Geo,BHI,Ocean,Weir
	5 Sat	02.04.05 18:00	04.04.05 09:00	10,0	1,9	9,0	1,6	9,0	39,0	5,1	0,5	5 Drill 36" hole fram 355 m to 403 m. (ROP: 5 m/hr)	MI,OR,Geo,BHI,Ocean,Weir
	6 Mon	04.04.05 09:00	04.04.05 10:30	4,0	2,0	3,5	1,8	3,5	1,5	5,2	0,6	6 Circulate hole clean and displace to 1.35 sg mud.	MI,OR,Geo,BHI,Ocean,Weir
	7 Mon	04.04.05 10:30	04.04.05 15:00	5,0	2,3	4,5	2,0	4,5	4,5	5,4	0,7	POOH, top up hole with 1.35 sg mud from below sea bed. LD 36" HO assembly.	MI,OR,Geo,BHI,Ocean,Weir
	8 Mon	04.04.05 15:00	05.04.05 00:00	10,0	2,7	9,0	2,4	9,0	9,0	5,8	1,0	8 Rig up and run 30" conductor to sea bed on 5 1/2" DP.	OR,Geo,Ocean,DQ
	9 Tue	05.04.05 00:00	05.04.05 02:30	2,0	2,8	2,0	2,4	2,0	2,5	5,9	0,9	9 Stab in and land conductor.	OR,Geo,Ocean,DQ
	10 Tue	05.04.05 02:30	05.04.05 05:00	3,0	2,9	3,0	2,6	3,0	2,5	6,0	0,1	0 Circulate, pump and displace Tuned-light cement.	OR,Hall,Geo,Ocean
	11 Tue	05.04.05 05:00	05.04.05 08:30	0,0	2,9	0,0	2,6	0,0	3,5	6,1	0,1	1 If required; WOC.	OR
	12 Tue	05.04.05 08:30	05.04.05 12:00	3,0	3,0	2,5	2,7	2,5	3,5	6,3	0,1	2 Release RT and wash conductor housing. POOH.	OR,Ocean,DQ
	13 Tue	05.04.05 12:00	05.04.05 15:00	6,0	3,3	5,0	2,9	5,0	3,0	6,4	0,1	3 MU and RIH with 26" clean out assembly.	OR,Geo,BHI,Ocean,Weir
	14 Tue	05.04.05 15:00	05.04.05 21:30	5,0	3,5	4,5	3,1	4,5	6,5	6,6	0,1	4 Drill out 30" conductor shoe and clean out rat hole. POOH	MI,OR,Geo,BHI,Ocean,Weir
	15 Tue	05.04.05 21:30	06.04.05 03:00	6,0	3,7	5,5	3,3	5,5	5,5	6,9	0,1	5 MU and RIH 9 7/8" pilot BHA to bottom.	OR,Geo,BHI,BHI
		06.04.05 03:00	**08.04.05 11:30**	**42,0**	**1,8**	**37,5**	**1,6**	**37,5**	**56,5**	**2,4**	**14,0**	**9 7/8" [NO 7131/4-1]**	
	16 Wed	06.04.05 03:00	07.04.05 16:00	16,0	4,4	14,0	3,9	14,0	37,0	8,4	14,0	16 Drill 9 7/8" pilot hole to 805 m. (ROP: 25 m/hr).	MI,OR,Geo,BHI,BHI,Ocean,Weir
	17 Thu	07.04.05 16:00	07.04.05 17:30	6,0	4,6	5,5	4,1	5,5	1,5	8,5	0,1	17 Circ. hole clean. Flowcheck. Displace to 1.35 sg mud.	MI,OR,Geo,BHI,Ocean,Weir
	18 Thu	07.04.05 17:30	08.04.05 01:30	10,0	5,0	9,0	4,5	9,0	8,0	8,8	0,1	18 POOH and LD 9 7/8" BHA.	OR,Geo,BHI,BHI,Ocean
	19 Fri	08.04.05 01:30	08.04.05 05:30	4,0	5,2	3,5	4,6	3,5	4,0	9,0	0,1	19 MU and rack back cement stand and 18 3/4" WH housing in derrick.	OR,Hall,DQ
	20 Fri	08.04.05 05:30	08.04.05 11:30	6,0	5,5	5,5	4,9	5,5	6,0	9,2	0,2	20 MU and RIH with 17 1/2" HO assembly to bottom.	OR,Geo,BHI,Ocean,Weir
		08.04.05 11:30	**05.05.05 06:00**	**130,0**	**5,4**	**116,0**	**4,8**	**121,0**	**642,5**	**26,8**	**2,0**	**17 1/2" [NO 7131/4-1]**	
	21 Fri	08.04.05 11:30	10.04.05 03:00	30,0	6,7	26,0	5,9	26,0	39,5	10,9	0,2	21 Open pilot hole from 9 7/8" to 17 1/2" hole to 805 m. (ROP: 14 m/hr)	MI,OR,Geo,BHI,Ocean,Weir
	22 Sun	10.04.05 03:00	10.04.05 04:30	8,0	7,0	7,0	6,2	7,0	1,5	10,9	0,2	22 Circulate hole clean and displace to 1,35 sg mud.	MI,OR,Geo,BHI,Ocean
	23 Sun	10.04.05 04:30	10.04.05 08:30	12,0	7,5	10,5	6,7	10,5	4,0	11,1	0,2	23 POOH, wash conductor housing and top up hole with 1,35 sg mud. Rack back 17 1/2" HO assembly.	MI,OR,Geo,BHI,Ocean
	24 Sun	10.04.05 08:30	11.04.05 02:30	16,0	8,2	14,0	7,3	14,0	18,0	11,9	1,0	24 RU and run 13 3/8" casing with 18 3/4" WH housing on 5 1/2" DP.	OR,Geo,Ocean,Weath,DQ
	25 Mon	11.04.05 02:30	11.04.05 04:30	6,0	8,5	5,5	7,5	5,5	2,0	11,9	0,2	25 Circulate, pump and displace cement.	OR,Hall,Geo,Ocean,Weath,DQ
	26 Mon	11.04.05 04:30	11.04.05 07:30	5,0	8,7	4,5	7,7	4,5	3,0	12,1	0,2	26 Release RT and wash WH area. POOH. LD cement head and RT.	OR,Hall,Ocean,DQ
	27 Mon	11.04.05 07:30	12.04.05 14:30	23,0	9,6	21,0	8,5	21,0	31,0	13,4	1,0	27 RU and run BOP and riser.	OR,Hall,Ocean
	28 Tue	12.04.05 14:30	13.04.05 16:00	0,0	9,6	0,0	8,5	0,0	25,5	14,4	0,2	27A WOW.	OR
	29 Wed	13.04.05 16:00	19.04.05 10:00	0,0	9,6	0,0	8,5	0,0	138,0	20,2	0,2	27C Perform hazid/ hazeop	OR
	30 Tue	19.04.05 10:00	20.04.05 09:30	0,0	9,6	0,0	8,5	0,0	23,5	21,1	0,2	27B Cont to run BOP.	OR
	31 Wed	20.04.05 09:30	20.04.05 19:00	4,0	9,8	3,5	8,7	3,5	9,5	21,5	0,2	28 Land, lock and test connector and 13 3/8" casing against BSR.	OR,Hall,Ocean,DQ

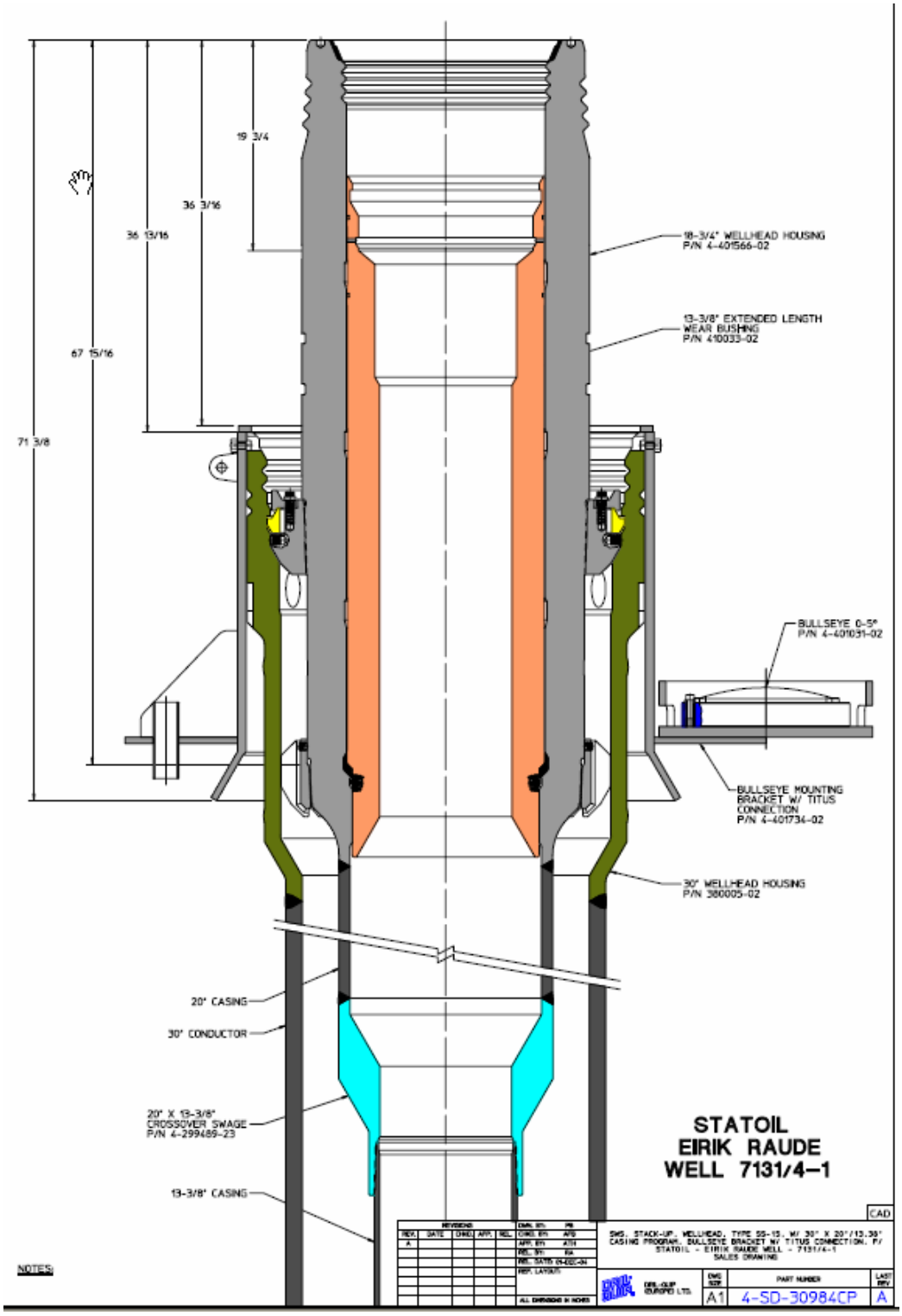
Project planner

Guovca well 7131/4-1

T.O233A.AP.MAIN

		Start time	End time	Budget time hrs	Acc Budget days	Tech limit hrs	Acc tech days	Planned time hrs	Actual time hrs	Acc actual days	Down time	Description	Companies
		08.04.05 11:30	**05.05.05 06:00**	**130,0**	**5,4**	**116,0**	**4,8**	**121,0**	**642,5**	**26,8**	**2,0**	**17 1/2" [NO 7131/4-1]**	
	32 Wed	20.04.05 19:00	21.04.05 04:30	6,0	10,0	5,5	8,9	5,5	9,5	21,9	0,0	29 RD BOP landing joint and install diverter.	OR
	33 Thu	21.04.05 04:30	03.05.05 10:30	0,0	10,0	0,0	8,9	0,0	294,0	34,2	0,0	29A Time out due to hydraulic spill	OR
	34 Tue	03.05.05 10:30	03.05.05 13:30	5,0	10,3	5,5	9,1	5,5	3,0	34,3	0,0	30 Test diverter and MU hang off stand.	OR,Geo,BHI,BHI,Weir
	35 Tue	03.05.05 13:30	04.05.05 05:00	4,0	10,4	3,0	9,3	3,0	15,5	35,0	0,0	31 Pressure test BOP.	OR
	36 Wed	04.05.05 05:00	04.05.05 12:00	1,0	10,5	1,0	9,3	6,0	7,0	35,3	0,0	31A MU and RIH w/ 8 1/2" BHA.	OR
	37 Wed	04.05.05 12:00	05.05.05 03:00	4,0	10,6	3,5	9,5	3,5	15,0	35,9	0,0	32 Displce well to 1.03 sg Mud, drill out shoe track and 3 m new formation.	MI,OR,Geo,BHI,BHI,Weir,OTAS
	38 Thu	05.05.05 03:00	05.05.05 06:00	6,0	10,9	5,5	9,7	5,5	3,0	36,0	0,0	33 Circulate hole clean, spot WBM pill on bottom. Perform LOT.	MI,OR,Hall,Geo,BHI,BHI,Weir,OTAS
		05.05.05 06:00	**12.05.05 18:00**	**169,0**	**7,0**	**150,0**	**6,3**	**150,0**	**180,0**	**7,5**	**8,0**	**8 1/2" [NO 7131/4-1]**	
	39 Thu	05.05.05 06:00	05.05.05 08:30	4,0	11,0	3,5	9,8	3,5	2,5	36,1	0,0	34 Displace well to 1.33 sg. low sulphate WBM.	MI,OR,Geo,OTAS
	40 Thu	05.05.05 08:30	06.05.05 06:00	16,0	11,7	14,0	10,4	14,0	21,5	37,0	0,0	35 Drill 8 1/2" hole to core point #1 at approx. 910 m (ROP: 10 m/hr). POOH, rack BHA in derrick.	MI,OR,Geo,BHI,BHI,Weir,OTAS
	41 Fri	06.05.05 06:00	06.05.05 13:00	6,0	12,0	5,5	10,6	5,5	7,0	37,3	0,0	36 MU 180' core BHA and RIH.	OR,Geo,BHI,Weir
	42 Fri	06.05.05 13:00	07.05.05 03:30	20,0	12,8	18,0	11,4	18,0	14,5	37,9	0,5	37 Cut core #1, 54 m core. (ROP: 5 m/hr). POOH, rack core assembly in derrick.	MI,OR,Geo,BHI,BHI,Weir,OTAS
	43 Sat	07.05.05 03:30	07.05.05 11:30	6,0	13,0	5,0	11,6	5,0	8,0	38,2	0,0	38 MU and RIH with 8 1/2" BHA	OR,Geo,BHI,BHI,Weir
	44 Sat	07.05.05 11:30	08.05.05 04:00	18,0	13,8	16,0	12,3	16,0	16,5	38,9	0,0	39 Drill 8 1/2" hole to core point #2 at approx. 1085 m (ROP: 10 m/hr). POOH, rack BHA in derrick.	MI,OR,Geo,BHI,BHI,Weir,OTAS
	45 Sun	08.05.05 04:00	08.05.05 10:00	6,0	14,0	5,5	12,5	5,5	6,0	39,2	0,0	40 MU 180' core BHA and RIH.	OR,Geo,BHI,Weir
	46 Sun	08.05.05 10:00	09.05.05 02:00	21,0	14,9	18,5	13,3	18,5	16,0	39,8	0,0	41 Cut core #2, 54 m core. (ROP: 5 m/hr). POOH, LD core assembly.	MI,OR,Geo,BHI,Weir,OTAS
	47 Mon	09.05.05 02:00	09.05.05 11:30	6,0	15,2	5,0	13,5	5,0	9,5	40,2	0,0	42 MU and RIH with 8 1/2" BHA.	OR,Geo,BHI,BHI,Weir
	48 Mon	09.05.05 11:30	10.05.05 16:00	24,0	16,2	22,0	14,4	22,0	28,5	41,4	7,5	43 Drill 8 1/2" hole to DT at 1325 m (ROP: 10 m/hr). POOH, rack BHA in derrick.	MI,OR,Geo,BHI,BHI,Weir,OTAS
	49 Tue	10.05.05 16:00	12.05.05 18:00	42,0	17,9	37,0	15,9	37,0	50,0	43,5	0,0	44 RU and perform wire line logging (#1: Pexlite-DSI. #2: MDT. #3: VSP. #4: CST).	MI,OR,Geo,Schlum
		12.05.05 18:00	**17.05.05 16:00**	**86,0**	**3,6**	**76,5**	**3,2**	**76,5**	**118,0**	**4,9**	**32,5**	**PERM P&A [NO 7131/4-1]**	
	50 Thu	12.05.05 18:00	15.05.05 09:00	26,0	19,0	24,0	16,9	24,0	63,0	46,1	24,0	45 P/U cement stinger and RIH to TD. Plug back open hole up to minimum 50 m inside 13 3/8" casing.	MI,OR,Hall,Geo,OTAS
	51 Sun	15.05.05 09:00	15.05.05 18:30	6,0	19,3	5,5	17,2	5,5	9,5	46,5	7,5	46 RIH with 13 3/8" EZSV on DP to 650 m.	OR,Hall,Geo
	52 Sun	15.05.05 18:30	15.05.05 22:00	5,0	19,5	4,5	17,4	4,5	3,5	46,7	1,0	47 Pressure test cement plug to 70 bar above 13 3/8" LOT. Set and pressure test EZSV.	OR,Hall,Geo
	53 Sun	15.05.05 22:00	15.05.05 23:30	4,0	19,6	3,5	17,5	3,5	1,5	46,7	0,0	48 Displace well to sea water.	MI,OR,Geo
	54 Sun	15.05.05 23:30	16.05.05 09:00	6,0	19,9	5,5	17,7	5,5	9,5	47,1	0,0	49 Set surface cement plug from 650 m to 500 m. POOH.	OR,Hall,Geo,OTAS
	55 Mon	16.05.05 09:00	17.05.05 10:00	24,0	20,9	21,0	18,6	21,0	25,0	48,2	0,0	50 Pull riser and BOP.	OR,Ocean
	56 Tue	17.05.05 10:00	17.05.05 16:00	13,0	21,4	10,5	19,0	10,5	6,0	48,4	0,0	51 MU and RIH with MOST cutting assembly. Cut WH 5 m below sea bed. POOH.	Weath,OR,Geo,Ocean,DQ
	57 Tue	17.05.05 15:59	17.05.05 16:00	2,0	21,5	2,0	19,1	2,0	0,0	48,4	0,0	52 LD MOST assembly and WH.	OR,DQ
		17.05.05 16:00	**18.05.05 22:00**	**24,0**	**1,0**	**21,0**	**0,9**	**21,0**	**30,0**	**1,3**	**0,0**	**MOVE [NO 7131/4-1]**	
	58 Tue	17.05.05 16:00	18.05.05 22:00	24,0	22,5	21,0	20,0	21,0	30,0	49,7	0,0	53 Pull anchors and deballast rig. Meanwhile: Inspect seabed with ROV. Retrieve transponders	OR
				22,5 days		**20,0 days**		**20,2**	**49,7 days**				

4.7.5 Wellhead system



4.7.6 Drilling fluids data

DRILLING FLUIDS DATA

Well: 7131/4-1
Field: PL 233, Guovca
Rig: Eirik Raude

All depths refer to RKB
RKB-MSL Eirik Raude: 25 m.

HOLE SIZE	HOLE TVD	HOLE MD	CASING SIZE	CASING TVD	CASING MD	MUD TYPE	MW [g/cm³]	Funnel Visc. [sec.]	Fann 3 rpm	10 sec. [Pa]	10 min. [Pa]	PV [cP]	YP [Pa]	API FL [ml]	pH	MBT [kg/m³]	Ca ++ [mg/l]	Kcl [kg/m³]	Glyc. [%]	Sulphate [mg/l]	LGS [kg/m³]	Usage Volume [m³]
36"	403.5	403.5	30"	403.5	403.5	SW/ Bentonite/ Polymer	01jan - 1,35	> 150														107
						Section drilled by use of Sea Water and Bentonite high visc sweeps. 5 m3 of high visc pumped every 15 m drilled. At TD the hole was displaced to 1,35 sg Bentonite mud before pulling out to run 30" conductor. The drilling fluid worked as expected and no mud related problem was observed.															
17 1/2"	805.5	805.5	13 3/8"	799.5	799.5	SW/ Bentonite/ Polymer	1,03 - 1,35	> 150														443
						A 9 7/8" pilot hole was drilled and opened up to 17 1/2". The hole was drilled by use of Sea Water and Bentonite high visc pills. 5 m3 high visc was pumped every 15 m drilled. The pilot hole was first filled with high visc and later displaced to 1,35 sg Bentonite mud. After opening up the hole to 17 1/2", the kill mud was diluted to 1,35 sg and used as displacement fluid. The drilling fluid worked as expected and no mud related problem was observed.															
8 1/2"	Dry well: 1 295 1 295		n/a	n/a		Glydril 99% KCl	1,33	na	5 - 7	3 - 4	3,5 - 5	15 - 18	7,5 - 13	2,6 - 3	8,9 - 9	7	120 - 240	150 - 169	4,2	95 - 143	7 - 61	28,5
						Displaced well to drill water weighted up to 1,03 sg with 99% KCl brine, and drilled out cement by use of this fluid in addition to a high visc pill pumped at 791 m. Continued with same fluid through rat hole and 4 m into new formation. Cleaned the hole by pumping 10 m3 high visc and then spotted a 10 m3 high visc on bottom before performing a LOT. After performing LOT the well was displaced to 1,33 sg Glydril 99% KCl fluid. The Glydril 99% KCl fluid was in exellent condition throughout the section. The KCl content was run at the high end of specification. Ran three shakers with 230 mesh screens at the start. Changed to 200 mesh screens on two of the shakers at the end of the well. There were only traces of sand in the mud.															

4.7.7 Cementing data

CEMENT DATA

Well: 7131/4-1
Field: PL 233, Guovca
Rig: Eirik Raude

All depths refer to RKB
RKB-MSL Eirik Raude: 25 m.

HOLE		CASING SHOE		TOC		VOLUME/ EXCESS	CEMENT SLURRY DESIGN										SPACER	DISPLACEMENT
SIZE	TVD MD	SIZE	TVD MD	TVD MD			Components	Lead [l/m/1000 m]	Tail [l/m/1000 m]	Density [g/cm³]	Yield [l/m/1000m]	Stat. Thickening time, [to 30 Bc]	Free [%]	API Fluid loss [ml/30min]	24 hrs C.S. [psi]		Fluids and Rates
36"	403.5 403.5	30"	403.5 403.5	Sea bed Sea bed		25.8 m³ 150 %	Tuned Light (X-LITE) cement $CaCl_2$ liquid NF-6 Seawater		4,50 0,10 54,23	1,52	106,30 Code DWLSP	6-8 API	03:30 (to 70 Bc)	n.a.	n/a	600	30 m³ Sea water	Sea water 800 lpm
17 1/2"	805.5 805.5	13 3/8"	799.5 799.5	Sea bed Sea bed		Lead: 39 m³ Tail: 15 m³ 50% on lead	Norcem "G" + 0,1% EZ-FLO Econolite $CaCl_2$ liquid NF-6 Seawater	3,20 - 0,10 94,97	- 1,50 0,10 41,45	L: 1,56 T: 1,95	L: 129,36 Code STL10 T: 74,14 Code STT15	23 / 15 API	L: 5:20 T: 4:17 (to 70 Bc)	n.a.	n/a	L:200 T: 1500	26 m³ Sea water	Sea water 3000 lpm
8 1/2"	1295 1295	Plug #1 Plug #2 Plug #3	1280,0 990,0 743,0	1015,0 743,0 610,0	Plug #1: 9.4 m³ Plug #2: 9.4 m³ Plug #3: 9.4 m³ 0% excess		Norcem "G" + 0,1% EZ-FLO Gasscon 469 Halad-400L CFR-8L HR-4L NF-6 Fresh water		3,50 3,00 2,50 0,80 0,10 37,10	1,90	78,06 Code GTT30	42 / 34 API	04:10	0	24	1000	6 m³ Spacer 3T ahead 6 m³ Spacer 3T ahead 9 m³ Spacer 3T ahead	Active mud 800 - 2500 lpm
13 3/8" Casing		Plug #4 Surface	600,0	400,0	Plug #4: 15,5 m³		Norcem "G" + 0,1% EZ-FLO NF-6 Seawater		0,10 46,74	1,90	77,90 Code STTN1	14 / 12 API	+/- 4	n.a.	n.a.	+/- 500	Seawater	Seawater 700 lpm

4.7.8 Bottom hole assemblies

All data are taked from the DBR system

BHA report

Wellbore: NO 7131/4-1

BHA seq: 1 BHA category: Drilling BHA description:

BHA no: 1

String component	OD in	ID in	Length m	Acc length m
BIT, TRI CONE	17,500		0,42	0,42
WEIGHT	11,000		2,02	2,44
HO TWO STAGE 26" X 36"	36,000		3,82	6,26
BIT SUB W/FLOAT	9,500		0,91	7,17
ANDERDRIFT	9,500		2,97	10,14
DRILL COLLAR	9,500	2,870	47,32	57,46
XO SUB	9,500	2,870	0,86	58,32
DRILL COLLAR	8,250	2,870	56,59	114,91
XO SUB	8,250	2,870	0,84	115,75
HWDP 5 1/2"	5,500	2,870	83,89	199,64

BHA seq: 2 BHA category: Drilling BHA description:

BHA no: 2

String component	OD in	ID in	Length m	Acc length m
BIT, TRI CONE	9,875		0,29	0,29
FLOAT SUB	8,300		0,88	1,17
HOLE OPENER	12,250		1,31	2,48
XO SUB	8,300		0,65	3,13
HOLE OPENER	17,500		1,25	4,38
HOLE OPENER	26,000		1,79	6,17
BIT SUB	9,565	2,870	0,92	7,09
DRILL COLLAR	9,565	2,870	47,32	54,41
XO SUB	9,565	3,000	0,86	55,27
DRILL COLLAR	8,250	3,000	56,59	111,86
XO SUB	8,250	2,870	0,84	112,70
HWDP 5 1/2"	5,500	2,870	83,89	196,59
DP 5 1/2"	5,500	4,778		196,59

BHA seq: 3 BHA category: Drilling BHA description:

BHA no: 3

String component	OD in	ID in	Length m	Acc length m
BIT, TRI CONE	9,875		0,26	0,26
BIT SUB	8,938	3,000	1,82	2,08
MPR SUB	8,250	3,000	3,60	5,68
APX	8,750	3,000	10,01	15,69
MWD DCP	8,250	3,000	11,15	26,84
SAVER SUB	8,250	3,000	0,89	27,73
FLOAT SUB	7,938	3,000	0,79	28,52
DRILL COLLAR	8,250	2,813	103,83	132,35
JAR	7,938	2,750	9,62	141,97
DRILL COLLAR	8,250	2,813	28,27	170,24

		XO SUB			8,250	2,813	0,84	171,08
		HWDP 5 1/2"			5,500		83,89	254,97
		DP 5 1/2"			5,500	4,778		254,97
BHA seq:	4	BHA category:	Drilling	BHA description:				

BHA no: 4

String component	OD in	ID in	Length m	Acc length m
BIT, TRI CONE	9,875		0,26	0,26
GR TOOL	8,938	3,000	1,29	1,55
MPR SUB	8,250	3,000	3,61	5,16
APX	8,750	3,000	9,99	15,15
MWD DCP	8,250	3,000	11,14	26,29
SAVER SUB	8,250	3,000	0,89	27,18
FLOAT SUB	7,938	3,000	0,79	27,97
DRILL COLLAR	8,250	2,813	103,83	131,80
JAR	7,938	2,750	9,62	141,42
DRILL COLLAR	8,250	2,813	28,27	169,69
XO SUB	8,250	2,813	0,84	170,53
HWDP 5 1/2"	5,500		83,89	254,42
DP 5 1/2"	5,500	4,778		254,42

BHA seq: 5 BHA category: Drilling BHA description:

BHA no: 5

String component	OD in	ID in	Length m	Acc length m
BULL NOZE,	7,992	0,000	1,39	1,39
FLOAT SUB,	8,307	2,834	0,88	2,27
HOLE OPENER	12,250	2,834	1,31	3,58
X-OVER	8,307	2,834	0,65	4,23
HOLE OPENER,	17,500	3,070	1,25	5,48
BIT SUB	9,566	3,070	0,92	6,40
X-OVER	9,566	3,070	0,86	7,26
DRILL COLLAR	8,250	2,834	84,93	92,19
JAR	7,937	3,000	9,62	101,81
DRILL COLLAR	8,250	2,834	28,27	130,08
X-OVER	8,307	2,834	0,84	130,92
5 1/2" HWDP	5,500	4,778	83,89	214,81

BHA seq: 6 BHA category: Drilling BHA description:

BHA no: 6

String component	OD in	ID in	Length m	Acc length m
BIT, PDC	8,500		0,24	0,24
STAB SLEVE NM	8,500	2,250	1,18	1,42
ON TRAK	7,000	2,250	5,16	6,58
MOD STAB	8,346	2,250	1,24	7,82
BCPM	7,000	2,250	3,24	11,06
STOP SUB	7,000	2,250	0,49	11,55
FLOAT SUB	7,000	2,835	0,91	12,46
STAB SLEEVE	8,500	2,250	1,81	14,27
DRILL COLLAR STEEL,	6,750	2,835	75,61	89,88
JAR	6,375		9,49	99,37
DRILL COLLAR STEEL,	6,750	2,835	28,37	127,74
HWDP 5"	5,000		82,40	210,14
DRILL PIPE	5,000		229,88	440,02

		XO SUB			6,750	3,000	0,65	440,67
BHA seq:	7	BHA category:	Drilling	BHA description:				
BHA no:	7							
		String component			OD in	ID in	Length m	Acc length m
		BIT, CORE			8,500		0,42	0,42
		STAB STRING			8,450	5,375	2,00	2,42
		CORE BARREL			7,250	5,375	8,35	10,77
		STAB STRING			8,450	5,375	0,79	11,56
		CORE BARREL			7,250	5,375	8,35	19,91
		STAB STRING			8,450	5,375	0,79	20,70
		CORE BARREL			7,250	5,375	8,35	29,05
		STAB STRING			8,450	5,375	0,79	29,84
		CORE BARREL			7,250	5,375	8,35	38,19
		STAB STRING			8,450	5,375	0,79	38,98
		CORE BARREL			7,250	5,375	8,35	47,33
		STAB STRING			8,450	5,375	0,79	48,12
		CORE BARREL			7,250	5,375	8,35	56,47
		STAB STRING			8,450	5,375	0,79	57,26
		EXTENSION SUB,			7,250	5,375	0,93	58,19
		TOP SUB			7,250	3,150	0,43	58,62
		FLOAT SUB			6,500	2,250	0,76	59,38
		DRILL COLLAR			6,750	2,835	47,25	106,63
		JAR			6,378		9,49	116,12
		DRILL COLLAR			6,750	2,835	28,37	144,49
		HW DRILL PIPE			5,000		82,39	226,88
		DRILL PIPE			5,000		229,88	456,76
BHA seq:	8	BHA category:	Drilling	BHA description:				
BHA no:	8							
		String component			OD in	ID in	Length m	Acc length m
		BIT, PDC			8,500		0,24	0,24
		STAB SLEVE NM			8,500	2,250	1,18	1,42
		ON TRAK			7,000	2,250	5,10	6,52
		MOD STAB			8,346	2,250	1,24	7,76
		BCPM			7,000	2,250	3,24	11,00
		STOP SUB			7,000	2,250	0,49	11,49
		FLOAT SUB			7,000	2,835	0,91	12,40
		STAB SLEEVE			8,500	2,250	1,81	14,21
		DRILL COLLAR STEEL,			6,750	2,835	75,61	89,82
		JAR			6,375		9,49	99,31
		DRILL COLLAR STEEL,			6,750	2,835	28,37	127,68
		HWDP 5"			5,000		82,40	210,08
BHA seq:	9	BHA category:	Drilling	BHA description:				
BHA no:	7							
		String component			OD in	ID in	Length m	Acc length m
		BIT, CORE			8,500		0,42	0,42
		STAB STRING			8,450	5,375	2,00	2,42
		CORE BARREL			7,250	5,375	8,35	10,77
		STAB STRING			8,450	5,375	0,79	11,56
		CORE BARREL			7,250	5,375	8,35	19,91
		STAB STRING			8,450	5,375	0,79	20,70

		CORE BARREL			7,250	5,375	8,35	29,05
		STAB STRING			8,450	5,375	0,79	29,84
		CORE BARREL			7,250	5,375	8,35	38,19
		STAB STRING			8,450	5,375	0,79	38,98
		CORE BARREL			7,250	5,375	8,35	47,33
		STAB STRING			8,450	5,375	0,79	48,12
		CORE BARREL			7,250	5,375	8,35	56,47
		STAB STRING			8,450	5,375	0,79	57,26
		EXTENSION SUB,			7,250	5,375	0,93	58,19
		TOP SUB			7,250	3,150	0,43	58,62
		FLOAT SUB			6,500	2,250	0,76	59,38
		DRILL COLLAR			6,750	2,835	47,25	106,63
		JAR			6,378		9,49	116,12
		DRILL COLLAR			6,750	2,835	28,37	144,49
		HW DRILL PIPE			5,000		82,39	226,88
		DRILL PIPE			5,000		229,88	456,76
		XO SUB			6,750	3,000	0,65	457,41
BHA seq:	10	BHA category:	Drilling	BHA description:				
BHA no:	9							
		String component			OD in	ID in	Length m	Acc length m
		BIT, PDC			8,500		0,24	0,24
		STAB SLEVE NM			8,500	2,250	1,18	1,42
		ON TRAK			7,000	2,250	5,10	6,52
		BCPM			7,000	2,250	3,24	9,76
		MOD STAB			8,346	2,250	1,24	11,00
		APX			7,000	2,250	11,04	22,04
		STOP SUB			7,000	2,250	0,49	22,53
		FLOAT SUB			7,000	2,835	0,91	23,44
		STAB SLEEVE			8,500	2,250	1,81	25,25
		DRILL COLLAR STEEL,			6,750	2,835	75,61	100,86
		JAR			6,375		9,49	110,35
		DRILL COLLAR STEEL,			6,750	2,835	28,37	138,72
		HWDP 5"			5,000		82,40	221,12
		DRILL PIPE			5,000		316,09	537,21
BHA seq:	11	BHA category:	Drilling	BHA description:				
BHA no:	10							
		String component			OD in	ID in	Length m	Acc length m
		BULL NOSE			8,000	1,500	0,38	0,38
		CASING CUTTER			12,000	1,000	1,84	2,22
		TOP SUB			10,000	3,500	0,96	3,18
		STABILIZER NON.ROT			17,500	2,750	1,40	4,58
		PONY COLLAR			8,000	2,813	1,85	6,43
		SPACER SUB			8,000	2,250	0,19	6,62
		SPACER SUB			8,000	3,063	0,89	7,51
		SPACER SUB			8,000	2,750	0,89	8,40
		MOST TOOL			37,500		8,82	17,22
		DRILL COLLAR			8,250	2,813	84,85	102,07
		XO SUB			8,250		0,87	102,94
		HW DRILL PIPE			5,500	3,500	83,89	186,83

4.7.9 Bit record

All data are taked from the DBR system

Bit record

Wellbore: NO 7131/4-1

								Nozzles (n/32")				
Run no	**Bit size**	**Bit no**	**BHA no**	**Bit type**	**IADC code**	**Bit manufacturer**	**Serial no**	**no x n**	**no x n**	**no x n**	**no x n**	**Flow area in2**
1	36"	1	1	HOLE OPENER		Odfjell Drilling AS		3 x 18	3 x 16	x	x	1,335
1	17 1/2"	1RR	1	MX-3	135	Hughes Christensen	6003884	3 x 18	1 x 14	x	x	0,896
2	26"	2	2	HOLE OPENER		Odfjell Drilling AS	RS-HO-158	6 x 16	x	x	x	1,179
2	12 1/4"	2	2	HOLEOPENER	PDC	Smith Bits		x	x	x	x	
2	9 7/8"	2	2	EHT11	117	Reed-Hycalog	PP1750	15 x 3	12 x 1	x	x	0,113
2	17 1/2"	2	2	HOLE OPENER		Odfjell Drilling AS	RB-15434	3 x 18	x	x	x	0,746
3	9 7/8"	3	3	MXC09	437	Hughes Christensen	5030889	3 x 18	1 x 16	x	x	0,942
4	9 7/8"	3 rr 1	4	MXC09	437	Hughes Christensen	5030889	3 x 18	1 x 16	x	x	0,942
5	17 1/2"	2RR	5	HOLE OPENER		Odfjell Drilling AS	RB-15434	3 x 22	x	x	x	1,114
5	12 1/4"	2RR	5	HOLE OPENER	PDC	Smith Red Baron	JT-8939	5 x 12	x	x	x	0,553
5	8"	4	5	BULLNOSE		Odfjell Drilling AS		1 x 26	x	x	x	0,519
6	8 1/2"	5	6	MRS89VPX	M423	Smith Bits	SCA547	12 x 6	x	x	x	
7	8 1/2"	6	7	BHC606		Baker Hughes Inteq	7204093	x	x	x	x	1,180
8	8 1/2"	5rr	8	MRS89VPX	M423	Smith Bits	SCA547	6 x 12	x	x	x	0,663
9	8 1/2"	6RR	7	BHC606		Baker Hughes Inteq	7204093	x	x	x	x	1,180
10	8 1/2"	5RR2	9	MRS89VPX	M423	Smith Bits	SCA547	6 x 12	x	x	x	0,663

Wellbore: NO 7131/4-1

															Torque		Con drag	
Run no	**Bit size**	**Pump rate l/min**	**Pump press bar**	**Depth in mMD**	**Depth out mMD**	**Form drld m**	**Total drld m**	**Drld hrs**	**Circ hrs**	**ROP m/hr**	**Min WOB ton**	**Max WOB ton**	**Min RPM**	**Max RPM**	**Min kNm**	**Max kNm**	**Min kdaN**	**Max kdaN**
1	36"	5000	132	356	403	47,0	47,0	13,8	25,5	3,4	0	4	60	131	4	19		
1	17 1/2"	5000	132	356	407,7	51,7	51,7	13,8	25,5	3,7	0	8	60	131	4	19		
2	26"			403	404	1,0	4,0	0,7	1,3	1,4	3	5	49	81	4	5		
2	12 1/4"			403	409	6,0	9,0	0,7	1,3	8,6	3	5	49	81	4	5		
2	9 7/8"	5000		403	411	8,0	11,0	0,7	1,3	11,4	3	5	49	81	4	5		
2	17 1/2"			403	406	3,0	5,2	0,7	1,3	4,3	3	5	49	81	4	5		
3	9 7/8"	5000	124	411	413	2,0	2,0	0,1	1,3	20,0	1	3	70	99	3	5		
4	9 7/8"	3460	154	413	811	398,0	398,0	16,9	22,5	23,6	4	11	112	165	3	6	77	82
5	17 1/2"	3414	152	411	805	394,0	394,0	30,2	39,2	13,0	2	22	69	134	3.5	20	73	82
5	12 1/4"	3414	152	411	808	397,0	397,0	30,2	39,2	13,1	2	22	69	134	3.5	20	73	82
5	8"	3414	152	411	811	400,0	400,0	30,2	39,2	13,2	2	22	69	134	3.5	20	73	82
6	8 1/2"			811	915	104,0	143,0	11,0	26,0	9,5	1	4	30	80	2	6		
7	8 1/2"			915	949	34,0	34,0	2,3	4,1	14,8								
8	8 1/2"	2400	150	949	1070	121,0	121,0	7,1	13,3	17,0	1	4	70	110	4	7		
9	8 1/2"			1070	1118	48,0	48,0	6,2	7,5	7,7	3	10	90	100	3	8		
10	8 1/2"	2370	170	1118	1295	177,0	160,0	10,1	16,6	17,5	1	4		120	2.95	4.75		

Wellbore: NO 7131/4-1

	IADC dull grading

Run no	Bit size	I	O	DC	L	B	G	OC	RP	Remarks
1	36"									26" x 36" 2-stage hole opener.
1	17 1/2"	2	2	WT	A	F	I	NO	TD	Used bit. 219 krevs on this run.
2	26"	0	0	NO	A	0	I	NO	TD	Drilled out 30" conductor.
2	12 1/4"	0	0	NO	A	X	I	NO	TD	Drilled out 30" conductor.
2	9 7/8"	0	0	NO	A	E	I	NO	TD	Drilled out 30" conductor.
2	17 1/2"	0	0	NO	A	E	I	NO	TD	Drilled out 30" conductor.
3	9 7/8"	0	0	NO	A	E	I	NO	DTF	2 krevs.
4	9 7/8"	2	2	WT	A	E		NO	TD	Drill pilot hole.
5	17 1/2"	7	8	TR	A	Q	1/16	LT	TD	Hole opener worn out.
5	12 1/4"	1	1	CT	S	X	IN	NO	TD	
5	8"									
6	8 1/2"	1	1	CT	N	X	1	NO	CP	Drill out cement. 97 k revs.
7	8 1/2"	1	1	WT	A	X	I	PN	PR	
8	8 1/2"	1	2	WT	N	X	1	CT	CP	Rerun bit. Limited ROP to max 15 m/hr due to mud logging sample catching rate. 87 krev (for this run)
9	8 1/2"	1	1	BU	A	X	I	PN	PR	69 krevs.
10	8 1/2"	1	2	CT	A	X	1	NO	TD	Drilled with limited ROP due to cuttings handling system.

App A Operational listing

All data are taked from the DBR systrem.

Wellbore: **NO 7131/4-1**

Time from	Time to	Time used	Depth mMD	Act code	---Status--- During opr	End opr	Description of activities
30.03.2005 06:00	00:00	18,0	,0	MNMU	OK	OK	Rig in transit to location. Sailed 120 nm from Hydro's Obelix location, 7220/6-1, towards Guovca location. Average speed 6 kts.
31.03.2005 00:00	06:00	6,0	,0	MNMU	OK	OK	Continued rig move to location. Sailed in total 160 nm towards Guovca. 31 nm to Guovca location. Average speed 6,5 kts. ETA Guovca 1030 hrs 31/03/2005. Current position 72° 15,0' N 29° 32,5' E.
31.03.2005 06:00	11:00	5,0	,0	MNMU	OK	OK	Moved rig onto location. Rig 500 m from location at 1020hrs, on location at 1040 hrs, N71 41.7, E31 00.7. Total distance sailed from Obelix 191 nm.
31.03.2005 11:00	15:30	4,5	,0	MNMU	OK	OK	Unloaded deck cargo from the anchor handling vessels. Prepared for anchor handling.
31.03.2005 15:30	00:00	8,5	,0	MAWW	OK	OK	Waited on weather to run anchors. Meanwhile, dived ROV and performed seabed sampling according to program.
01.04.2005 00:00	06:00	6,0	,0	MAWW	OK	OK	Waited on weather to run anchors.
01.04.2005 06:00	16:00	10,0	,0	MAWW	OK	OK	Waited on weather to run anchors.
01.04.2005 16:00	00:00	8,0	,0	MARU	OK	OK	Performed anchor handling. Ran anchors #4, #8, #5 and #1. Pre tensioned anchors to 150 T. Meanwhile, ROV placed 4 marker bouys on the seabed.
02.04.2005 00:00	06:00	6,0	,0	MARU	OK	OK	Continued anchor handling. Ran anchors #7, #3, #6 and #2.
02.04.2005 06:00	09:00	3,0	,0	MARU	OK	OK	Performed 230 T pull test on anchors. Meanwhile picked up and racked 3 stands 5½" HWDP in derrick.
02.04.2005 09:00	11:00	2,0	275,0	MNBU	OK	E FAIL	Ballasted rig. PU and MU 36" BHA. Tripped in to 275 m.
02.04.2005 11:00	11:30	0,5	275,0	RCOD	E FAIL	OK	Fire alarm on rig. Suspended operations and mustered personnel while investigating cause of alarm.
02.04.2005 11:30	13:30	2,0	286,0	MNBU	OK	OK	Continued ballasting rig to 23,5 m operational draft while tripping in with 36" BHA to 286 m.
02.04.2005 13:30	14:00	0,5	356,0	DTDU	OK	E FAIL	RIH with BHA and tagged sea bed without pumping at 356 m. Positioned 4 marker bouys 5 m from well center according to program.
02.04.2005 14:00	15:30	1,5	355,0	DEOD	E FAIL	OK	Function tested Anderdrift tool. Unable to obtain pressure pulses from the tool. Repeated tests at various flow rates. Established flow rate to obtain surveys - 1500 lpm.
02.04.2005 15:30	18:00	2,5	356,5	DTPU	OK	OK	Picked up string 3,5 m and rotated at 60 rpm. Observed string drift 5 m. Moved rig to reposition string within marker bouys while observing well with ROV on sonar.
02.04.2005 18:00	19:00	1,0	371,0	DDRU	OK	OK	Spudded well and drilled with reduced parameters 1000 lpm, 1 T WOB, 60 rpm, 63 bar. Drilled 36" hole to 363 m. Increased flow rate to 5000 lpm and drilled to 371 m. Performed survey and recorded 2,25 deg inclination. Reamed 3 times and repeated survey. Recorded 2,0 deg inclination.
02.04.2005 19:00	23:00	4,0	386,0	DDRU	OK	OK	Drilled 36" hole to 386 m using 0 - 3 T WOB, 120 rpm, 5000 lpm. Pumped 5 m³ high viscosity sweep every 15 m drilled. Performed survey and recorded 2,25 deg inclination. Reamed section 3 times and repeated survey. Recorded 2 deg inclination. RIH after survey, observed 2,5 m fill on bottom.
02.04.2005 23:00	00:00	1,0	387,0	DDRU	OK	OK	Drilled 36" hole to 387 m using 0 - 3 T WOB, 120 rpm, 5000 lpm.
03.04.2005 00:00	01:00	1,0	389,0	DDRU	OK	OK	Continued drillling 36" hole to 389 m using 0 - 3 T WOB, 120 rpm, 5000 lpm, 132 bar. Rig experiencing 9 m - 11 m waves with 6 deg roll and utilizing 97% thruster power to maintain position. Increased anchor tension to 150 T on windward side.
03.04.2005 01:00	02:00	1,0	340,0	DDWW	OK	OK	POOH from 389 m to 340 m.
03.04.2005 02:00	06:00	4,0	340,0	DDWW	OK	OK	WOW.
03.04.2005 06:00	12:00	6,0	314,0	DDWW	OK	OK	WOW. Meanwhile greased the top drive. MU and racked the cement stand with pump-in sub in the derrick.
03.04.2005 12:00	14:00	2,0	314,0	DDWW	OK	OK	WOW. Rigged up Totco survey gear. To check shot survey with Totco at 314 m - 0,5 deg inclination. Performed survey with Anderdrift - 0,5 deg inclination.
03.04.2005 14:00	16:00	2,0	354,0	DDWW	OK	OK	WOW. RIH from 314 m MD to 354 m MD. Repositioned rig for re-entry into 36" hole.
03.04.2005 16:00	17:00	1,0	389,0	DDWW	OK	OK	Re-entered 36" hole. Took check shot surveys with Anderdrift while RIH to bottom. 0,25 deg inclination @ 370 m MD. 0,75 deg inclination @ 380 m MD.
03.04.2005 17:00	00:00	7,0	399,0	DDRU	OK	OK	Drilled 36" hole from 389 m MD to 399 m MD using 1 - 4 T WOB, 80 - 130 rpm, 5000 lpm, 130 bar. Pumped 5 m³ high vis at 384 m MD. Reamed section 3 times prior to

							taking Anderdrift survey. 1,0 deg @ 388 m survey depth.
04.04.2005 00:00	06:00	6,0	405,5	DDRU	OK	OK	Drilled 36" hole from 399 m to 405,5 m MD.
04.04.2005 06:00	08:00	2,0	407,7	DDRU	OK	OK	Drilled 36" hole to 407,7 m MD using 5000 lpm, 131 bar, 3 - 8 T WOB, 70 - 130 rpm. Reamed stand and performed Anderdrift survey. 0.75° inclination at 398 m MD.
04.04.2005 08:00	09:00	1,0	407,7	DDRU	OK	OK	Confirmed depth with ROV and verified with drilling tally to correlate 36" hole depth.
04.04.2005 09:00	10:00	1,0	407,7	DCAU	OK	OK	Pumped 25 m³ high viscousity sweep and circulated bottoms up. Logged well position with ROV.
04.04.2005 10:00	10:30	0,5	407,7	DCAU	OK	OK	Displaced hole to 1,35 sg mud.
04.04.2005 10:30	14:00	3,5	366,0	DTCU	OK	OK	POOH to 366 m MD. Topped up well and POOH to surface.
04.04.2005 14:00	15:00	1,0	,0	DTBU	OK	OK	Pulled PS-30 slips and laid out 36" hole opener assembly.
04.04.2005 15:00	17:00	2,0	,0	CERU	OK	E FAIL	Cleared the drill floor. Held prejob meeting. Rigged up to run 30" conductor.
04.04.2005 17:00	18:00	1,0	,0	CAOD	E FAIL	OK	500 T bails unable to fit into 30" elevator ears. Time spent to locate certified slings for lifting conductor to drill floor. Rigged up 350 T drilling bails and 2 m 50 T slings.
04.04.2005 18:00	22:00	4,0	50,5	CARU	OK	OK	Ran 30" conductor according to tally. Installed handling clamp on conductor housing and landed on rotary table. Installed false rotary and ran 5½" DP inner string. MU 30" conductor housing running tool to conductor string.
04.04.2005 22:00	00:00	2,0	350,0	CARU	OK	OK	Ran conductor to moon pool and installed bulls eye clamp on conductor housing and ball valve on running tool. Filled up string prior to running below the splash zone. Ran 30" conductor to 350 m. Filled up every stand while RIH.
05.04.2005 00:00	02:30	2,5	403,7	CARU	OK	OK	Stabbed conductor string into the wellbore and RIH to 403,7 m MD. Checked bulls eye position and stick up with ROV - 3 m. Pulled rig 2 m aft to adjust bullseye inclication to 0,5° / 0° on the bulls eyes.
05.04.2005 02:30	03:30	1,0	403,7	CCCU	OK	OK	Circulated 30 m³ seawater at 3000 lpm. Meanwhile held prejob safety meeting on the drill floor. Tested surface lines to 100 bar / 5 minutes.
05.04.2005 03:30	05:00	1,5	403,7	CSSU	OK	OK	Mixed and pumped 28 m³ 1,52sg Xlite cement slurry at 830 - 400 lpm, 13 - 6 bar. Displaced cement with 9.4 m³ sea water at 1000 lpm, 60 bar.
05.04.2005 05:00	06:00	1,0	403,7	CSCW	OK	OK	WOC.
05.04.2005 06:00	08:30	2,5	403,0	CSCW	OK	OK	WOC.
05.04.2005 08:30	11:00	2,5	35,0	CTTU	OK	OK	Slacked off string weight to neutral weight while ROV observed bullseyes. Released 30" wellhead running tool. POOH to surface. 30" wellhead housing stick up 3 m, bullseyes: 0° / 0,5°
05.04.2005 11:00	12:00	1,0	,0	CERU	OK	OK	LD wellhead running tool. Broke down cement stand and cleared the drill floor.
05.04.2005 12:00	15:00	3,0	400,6	CTTU	OK	OK	PU 9 7/8" x 26" premade module. MU drill out BHA and RIH. Used ROV to guide string into well head. Tagged cement at 400,6 m MD.
05.04.2005 15:00	18:00	3,0	411,0	CDDU	OK	OK	Drilled out 30" conductor shoe. Drilled to 411 m MD until 26" cutters reamed the rat hole. Reamed the shoe track and rat hole several times. Pumped 5 m³ high viscosity pill and swept hole clean.
05.04.2005 18:00	21:30	3,5	,0	CTTU	OK	OK	POOH. LD excess BHA components and 9 7/8" x 26" premade module. Cleared the drill floor.
05.04.2005 21:30	00:00	2,5	132,0	DTBU	OK	OK	PU and MU MPR, APX and MWD tools. Verified communications across tools. Built 9 7/8" pilot hole BHA and RIH to 132 m.
06.04.2005 00:00	02:00	2,0	340,0	DTBU	OK	OK	Continued to MU 9 7/8" pilot hole assembly. RIH to 340 m MD.
06.04.2005 02:00	02:30	0,5	340,0	DDOU	OK	OK	Held shallow gas safety meeting. Reviewed actions, responses and responsibilites.
06.04.2005 02:30	03:00	0,5	411,0	DTDU	OK	OK	RIH with 9 7/8" pilot BHA. Washed down to bottom.
06.04.2005 03:00	03:30	0,5	413,0	DDRU	OK	E FAIL	Drilled pilot hole from 411 m MD to 413 m MD using 1 T WOB, 70 - 90 rpm, 3 - 5 kNm, 3900 lpm, 93 bar. Lost communication with MWD
06.04.2005 03:30	04:30	1,0	411,0	DEMD	E FAIL	OK	No communication with MPR sub. Picked off bottom and circulated while trouble shooting MWD.
06.04.2005 04:30	06:00	1,5	156,0	DTMD	E FAIL	OK	POOH to 156 m due to MWD failure.
06.04.2005 06:00	07:30	1,5	,0	DEMD	E FAIL	OK	POOH to surface with 9 7/8" pilot BHA. Plugged into MWD read out port, unable to establish communications with MPR sub. LD MPR sub and APX tool.
06.04.2005 07:30	08:30	1,0	,0	DEMD	E FAIL	E FAIL	PU back up MPR sub. Built 9 7/8" BHA.
06.04.2005 08:30	10:30	2,0	,0	DEMD	E FAIL	OK	Cross threaded MPR / APX connection. LD back up MPR sub and APX tool.
06.04.2005 10:30	13:00	2,5	,0	DEMD	E FAIL	OK	PU initially LD MPR tool and MU back up APX tool. Verified tools communication. Shallow hole tested MWD string.
06.04.2005 13:00	16:30	3,5	341,0	DTMD	E FAIL	OK	RIH to 341 m.
06.04.2005 16:30	17:00	0,5	341,0	DDOU	OK	OK	Held shallow gas preparedness safety meeting.
06.04.2005 17:00	17:30	0,5	413,0	DTMD	E FAIL	OK	Stabbed into conductor housing while observed with ROV. RIH and washed down to 413 m MD.
06.04.2005 17:30	00:00	6,5	506,0	DDRU	OK	OK	Drilled 9 7/8" pilot hole from 413 m MD to 506 m MD with 3 -6 T WOB, 145 rpm, 3450 lpm, 146 bar. Pumped 5m³ high viscosity pills every 15 m drilled and took surveys prior to making connections.
07.04.2005 00:00	03:30	3,5	562,0	DDRU	OK	E FAIL	Drilled 9 7/8" pilot hole from 506 m MD to 562 m MD with 5 - 8 T WOB, 165 rpm, 3450 lpm, 148 bar. Pumped 5m³ high viscosity pills every 15 m drilled and took surveys prior to making connections.

07.04.2005 03:30	04:00	0,5	562,0	DERD	E FAIL	OK	Observed hydraulic leakage from PS-30 slips. Rigged down PS-30 slips. Installed manual slips.
07.04.2005 04:00	06:00	2,0	598,0	DDRU	OK	OK	Drilled 9 7/8" pilot hole from 562 m MD to 598 m MD with 5 - 8 T WOB, 165 rpm, 3450 lpm, 148 bar. Pumped 5m³ high viscosity pills every 15 m drilled and took surveys prior to making connections.
07.04.2005 06:00	16:00	10,0	811,0	DDRU	OK	OK	Drilled 9 7/8" pilot hole from 598 m to TD at 811m with 5-8 ton WOB, 165 RPM, 3450 LPM and 148 bar. Pumped 5 m3 hi-vis pills every 15 m drilled and took survey prior to connections.
07.04.2005 16:00	16:30	0,5	811,0	DDRU	OK	OK	Reamed stand, took survey and swept hole with 10 m3 hi-vis pill.
07.04.2005 16:30	17:00	0,5	811,0	DDRU	OK	OK	Flow checked well. Well static.
07.04.2005 17:00	17:30	0,5	811,0	DCAU	OK	OK	Displaced hole to 1,35 sg mud.
07.04.2005 17:30	21:00	3,5	360,0	DTDU	OK	OK	POOH from 811m to 360m. Worked trough minor tight spots, max overpull 12 tons.
07.04.2005 21:00	21:30	0,5	360,0	DTDU	OK	OK	Topped up hole with 1,35 sg mud. Pulled bit above conductor housing and flushed drill string with seawater. Moved rig to safe zone.
07.04.2005 21:30	23:00	1,5	28,0	DTDU	OK	OK	Continued POOH to 28m.
07.04.2005 23:00	00:00	1,0	28,0	DDOU	OK	OK	Dumped data from MWD tool.
08.04.2005 00:00	00:30	0,5	28,0	DDOU	OK	OK	Continued dumping data from MWD tool.
08.04.2005 00:30	01:30	1,0	,0	DTDU	OK	OK	Continued POOH and LD MWD tool.
08.04.2005 01:30	02:00	0,5	,0	DDOU	OK	OK	Performed pre-job safety meeting prior to PU 18 3/4" well head housing assy.
08.04.2005 02:00	05:30	3,5	,0	DEOU	OK	OK	PU wellhead housing. Installed wiper plugs and running tool. LD wellhead assembly on deck.
08.04.2005 05:30	06:00	0,5	,0	DTBU	OK	OK	MU 17 1/2" hole opener assy.
08.04.2005 06:00	11:00	5,0	349,0	DTDU	OK	OK	Continued MU and RIH with 17 1/2" hole opener assy to 349 m. Serviced and inspected top drive for potential dropped objects while RIH.
08.04.2005 11:00	11:30	0,5	411,0	DTDU	OK	OK	Stabed into well and washed down from 390 m to 411 m.
08.04.2005 11:30	00:00	12,5	550,0	DDHU	OK	OK	Drilled and opened 9 7/8" hole to 17 1/2" from 411m to 550 m using 3-6 tons WOB, 80-120 RPM, 5000-6300 LPM and 155- 216 bar, torque min/max: 3.5-6.9 kNm. Pumped 5m3 hi-vis pill every 15m and reamed each stand.
09.04.2005 00:00	06:00	6,0	586,0	DDHU	OK	OK	Drilled and opened 9 7/8" hole to 17 1/2" from 550 m to 586 m using 3-6 tons WOB, 80-120 RPM, 5000-6300 LPM and 155- 216 bar, torque min/max: 3.5-6.9 kNm. Pumped 5m3 hi-vis pill every 15 m and reamed each stand.
09.04.2005 06:00	00:00	18,0	756,0	DDHU	OK	OK	Continued drilling and opening 9 7/8" hole to 17 1/2" from 586 m to 756 m using 5 -20 tons WOB, 80-110 RPM, 5500-6000 LPM and 160-215 bar, torque min/max: 2-15 kNm. Pumped 5m3 hi-vis pill every 15 m and reamed each stand.
10.04.2005 00:00	03:00	3,0	811,0	DDHU	OK	OK	Continued drilling and opening 9 7/8" hole to 17 1/2" from 756 m to 811 m using 5 -20 tons WOB, 80-110 RPM, 5500-6000 LPM and 160-215 bar, torque min/max: 2-15 kNm. Pumped 5m3 hi-vis pill every 15 m and reamed each stand.
10.04.2005 03:00	04:30	1,5	811,0	DCAU	OK	OK	Pumped 30 m3 hi-vis pill and circulated hole clean. Displaced hole to 1,35 sg mud. Flow checked well for 15 minutes.
10.04.2005 04:30	06:00	1,5	367,0	DTCU	OK	OK	POOH from section TD (17 1/2" HO at 805,5 m / bull nose at 811 m) to 367 m. Topped up hole with 1,35 sg mud at 550 m and dropped drift for drifting landing string. No drag in open hole.
10.04.2005 06:00	08:30	2,5	,0	DTCU	OK	OK	Continued POOH and LD 17 1/2" HO assembly.
10.04.2005 08:30	12:30	4,0	,0	CERU	OK	OK	Cleared rigfloor and PU Halliburton cement head. Held pre-job meetings for 13 3/8" casing rig up and for casing running. Rigged up and function tested Weatherford casing power tong.
10.04.2005 12:30	18:00	5,5	351,0	CARU	OK	OK	PU 13 3/8" shoe jnt. Pumped through and checked float. MU and thread locked shoe track and first jnt above float jnt. Continued running in to above the 30" conductor.
10.04.2005 18:00	19:30	1,5	364,0	CARU	OK	OK	Moved rig over location. Stabbed 13 3/8" casing into the well head housing while observing with ROV. Held casing running pre job meeting with night crew.
10.04.2005 19:30	22:00	2,5	450,0	CARU	OK	OK	Continued to run 13 3/8" casing from 364 to 433 m. RD Weatherford power scope and frame. Installed 5 1/2" elevators. PU and made up 18 3/4" wellhead housing w/running tool. Removed bull plug in running tool and topped up w/ seawater. Installed plug and ran wellhead below table. Installed master bushing and cleaned rigfloor for CSG equipment.
10.04.2005 22:00	23:30	1,5	796,0	CARU	OK	OK	Ran 13 3/8" casing on 5 1/2" running string to 796 m.
10.04.2005 23:30	00:00	0,5	796,0	CSSU	OK	OK	Function tested cement head prior to PU.
11.04.2005 00:00	00:30	0,5	796,0	CSSU	OK	E FAIL	MU same and installed cement hose. Attempted to establish 35 bar below IBOP. No go.
11.04.2005 00:30	01:30	1,0	796,0	CSOD	E FAIL	OK	Trouble shot leak. Found leak on IBOP. Closed IBOP manual and pressured up to 35 bar.
11.04.2005 01:30	02:30	1,0	799,5	CARU	OK	OK	Circulated through cement line with mud pumps (850 l/min / 18 bar). Pressure tested cement line to 345 bar with cement pumps. Landed 13 3/8" CSG with 36 ton down weight. Performed overpull test to 25 ton. Slacked off to 3 ton overpull.
11.04.2005 02:30	03:45	1,3	799,5	CSSU	OK	OK	Circulated one open hole volume sea water using rig pumps (600 lpm/ 5 bar). Dropped ball for bottom wiper plug. Mixed and pumped 39 m3 1,56 sg lead slurry and 15 m3 1,92 sg tail slurry. Displaced cement to drill fllor (600 liters seawater). Dropped dart and displaced down running string with seawater using cement pumps. (680 lpm / 7

							bar). Sheared top wiper plug with 160 bar after 3,9 m3 pumped.
11.04.2005 03:45	04:30	0,8	799,5	CSSU	OK	OK	Displaced cement using rig pumps (2930 lpm / 100 bar). Reduced flow to 470 lpm after 27.29 m3 (1150 strokes) pumped. Bumped plug at 31,89 m3 (1344 stk) pumped. Final circ. pressure: 30 bar. Pressured up to 100 bar (after 32,56 m3 / 1372 stk pumped). Lost pressure when turned off pumps. Attempted to regain pressure pumping 130 liter with cement pumps; - neg. Closed valve on manifold and on cement head and checked for leak on surface system. No leak found.
11.04.2005 04:30	05:30	1,0	799,5	CSSU	OK	OK	Released wellhead running tool (5 turns right). Pulled 4,5 m up to connection. LD cement head. Pulled clear of the wellhead. Moved rig 35 m off location. Dropped 2 Halliburton sponge balls and flushed string with seawater (3000 lpm) using rig pumps.
11.04.2005 05:30	06:00	0,5	,0	CTTU	OK	OK	POOH w/ landing string. LD running tool.
11.04.2005 06:00	07:30	1,5	,0	CERU	OK	OK	LD plug launcher tool and cement head. Cleared rig floor for excess tools.
11.04.2005 07:30	14:30	7,0	,0	BBRU	OK	OK	Held pre-job safety meeting prior to run BOP stack. Rigged up 20" riser handling equipment.
11.04.2005 14:30	17:00	2,5	,0	BBRU	OK	OK	Rigged up handling equipment prior to run BOP.
11.04.2005 17:00	19:30	2,5	,0	BBRU	OK	OK	Transported BOP stack to center below rotary. Connected riser to BOP.
11.04.2005 19:30	20:00	0,5	,0	BBRU	OK	OK	Held pre-job safety meeting with ongoing crew.
11.04.2005 20:00	22:30	2,5	92,0	BBRU	OK	OK	Ran BOP stack to 92m.
11.04.2005 22:30	00:00	1,5	92,0	BBRU	OK	OK	Pressure tested kill & choke lines to 20 bar/ 5 min and 510 bar/ 10 min.
12.04.2005 00:00	01:00	1,0	92,0	BBRU	OK	OK	Continued pressure testing kill & choke lines to 20 bar/ 5 min and 510 bar/ 10 min. Pressure tested conduit lines to working pressure, 345 bar.
12.04.2005 01:00	06:00	5,0	242,0	BBRU	OK	OK	Continued ran BOP stack from 92m to 242m.
12.04.2005 06:00	07:00	1,0	314,0	BBRU	OK	INJURY	Continued running BOP / riser from 242 m to 314m. Held pre job meeting. Installed riser adapter and pressure tested tool.
12.04.2005 07:00	07:30	0,5	314,0	BBRD	INJURY	OK	Incident with member of crew injuring his right hand when working with air operated torque wrench. Shut down operation, informed medic and escorted injured person to hospital for examination.
12.04.2005 07:30	09:00	1,5	314,0	BBRU	OK	OK	Pressure tested kill & choke lines to 20 bar/ 5 min. and 510 bar/ 10 min. Pressure tested conduit lines to working pressue; 345 bar.
12.04.2005 09:00	11:00	2,0	337,0	BBRU	OK	E FAIL	PU and installed slip joint. Mounted storm protection clamps for MUX control lines.
12.04.2005 11:00	11:30	0,5	337,0	BBOD	E FAIL	OK	Tighten loose stop collars on choke, kill & forward conduit lines.
12.04.2005 11:30	12:30	1,0	337,0	BBRU	OK	OK	Continued mounting storm protection clamps on MUX control lines.
12.04.2005 12:30	14:30	2,0	350,0	BBRU	OK	OK	PU and connected landing joint to slip joint. Lower slip joint and locked support ring. Took 10 ton overpull on lock- down dogs on support ring. Continued lower slip joint in place. Total load on riser tensioners; 325 tons.
12.04.2005 14:30	15:30	1,0	350,0	BBWW	OK	OK	Waiting on weather to allow installation of kill, choke, booster, 2 x conduit lines and glycol lines. In process of moving BOP trolly to welll center to assist in hooking up kill/ choke/ boost and services hoses, main hydraulic supply line to skid bursted and approx. 1600 ltrs of hyd. oil was spilled to sea.
12.04.2005 15:30	00:00	8,5	350,0	BBWW	OK	OK	Waiting on weather to allow installation of kill, choke, booster, 2 x conduit lines and glycol lines.
13.04.2005 00:00	06:00	6,0	350,0	BBWW	OK	OK	Continued waiting on weather to allow installation of kill, choke, booster, 2 x conduit lines and glycol lines.
13.04.2005 06:00	16:00	10,0	350,0	BBWW	OK	E FAIL	Waited on weather to allow installation of kill, choke 2 x conduit lines and glycol lines. Cannot continue operations now when weather allows, but continues hazid / hazop for enviromental consequences of the hydraulic oil spill on April 12th at 1530 hrs.
13.04.2005 16:00	00:00	8,0	350,0	ZRUN	OK	OK	Performed hazid/ hazop to identify if there is any possible negative enviormental consequences against continuing operation.
14.04.2005 00:00	06:00	6,0	350,0	ZRUN	OK	OK	Continued with hazid/ hazop checks prior to forthcomming operations in moonpool to install service hoses. Prepared new SJA to hang service hoses with manriding, inspected failed valve on choke manifold, and replaced worn parts. Rerouted winch in moonpool for service hoses.
14.04.2005 06:00	00:00	18,0	350,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Await on regulatory personell for final checks/authorization to move ahead with operations. Worked with hazid/ hazop checks prior to forthcomming operations in moonpool to install services hoses on to slip joint. Continued with pressure testing of choke manifold. Assisted scaffolding team in moonpool area. Installed cover cap over wellhead.
15.04.2005 00:00	06:00	6,0	350,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Await on regulatory personell for final checks/authorization to move ahead with operations. Continued working with hazid/ hazop checks prior to forthcomming operations in moonpool to install services hoses on to slip joint. Assisted scaffolding team in moonpool area. Performed general maintenance on rig.
15.04.2005 06:00	00:00	18,0	350,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Await regulatory personell for final checks / authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
16.04.2005 00:00	06:00	6,0	350,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Await regulatory personell for final checks / authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and

							housekeeping.
16.04.2005 06:00	00:00	18,0	350,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Await regulatory personell for final checks / authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
17.04.2005 00:00	06:00	6,0	350,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Await regulatory personell for final checks / authorization to move ahead with operations. Worked with hazid / hazop checks. Nine out of fourteen subjects on hazid/ hazop assessment form are completed. Performed general rig maintenance, PM`s, cleaning and housekeeping.
17.04.2005 06:00	00:00	18,0	350,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Await regulatory personell for final checks / authorization to move ahead with operations. Worked with hazid / hazop checks. All fourteen subjects on hazid/ hazop assessment form are completed. Performed general rig maintenance, PM`s, cleaning and housekeeping.
18.04.2005 00:00	06:00	6,0	350,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Await regulatory personell for final checks / authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
18.04.2005 06:00	00:00	18,0	350,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Await regulatory personell for final checks / authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
19.04.2005 00:00	06:00	6,0	350,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Await regulatory personell for final checks / authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping
19.04.2005 06:00	10:00	4,0	350,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Await regulatory personell for final checks / authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping
19.04.2005 10:00	11:00	1,0	350,0	BBRU	OK	OK	Exemption from suspension given to land the BOP. Performed SJA meeting prior to install service hoses to slip joint.
19.04.2005 11:00	12:00	1,0	350,0	BBRU	OK	OK	PU riser and attached safety slings to support ring. Slacked off riser to working height for installation of service lines.
19.04.2005 12:00	15:00	3,0	350,0	BBRU	OK	OK	Steamed both conduit hoses to clear lines for ice. Re-installed armoured protection on blue conduit line at splash zone level.
19.04.2005 15:00	00:00	9,0	350,0	BBRU	OK	OK	Hooked up choke, kill, boost, chemical injection and 2 x conduit lines to slip joint. Held SJA meeting with ongoing night shift at 1900 hrs.
20.04.2005 00:00	04:00	4,0	350,0	BBRU	OK	OK	Continued hooking up choke, kill, boost, chemical injection and 2 x conduit lines to slip joint.
20.04.2005 04:00	05:00	1,0	350,0	BBRU	OK	OK	Pressure tested kill & choke lines to 20 bar/ 5 min and 510 bar/ 10 min. Pressure tested conduit lines to working pressure; 345 bar.
20.04.2005 05:00	06:00	1,0	350,0	BBRU	OK	OK	Installed clevis hangers on MUX lines.
20.04.2005 06:00	08:00	2,0	350,0	BBRU	OK	OK	Installed slip joint service lines, moved rig 25 m off location.
20.04.2005 08:00	08:30	0,5	350,0	BBRU	OK	OK	Attached tugger to wellhead cap and pulled same to surface.
20.04.2005 08:30	09:00	0,5	350,0	BBOW	OK	OK	Aborted operation due to mustering caused by false gas alarm in engine room.
20.04.2005 09:00	09:30	0,5	350,0	BBRU	OK	OK	Removed safety sling from marine riser tensioner.
20.04.2005 09:30	12:00	2,5	350,0	BBRU	OK	OK	Positioned rig in well center. Landed BOP, set down 20 ton and locked wellhead connector. Performed 25 ton overpull test.
20.04.2005 12:00	16:00	4,0	350,0	BBRU	OK	OK	Finalised all service loops in moonpool. Displaced conduite lines from fresh water to BOP fluid. Meanwhile checked bull's-eyes on BOP with ROV, Flex joint in centre, LMRP 1 deg port, BOP in centre.
20.04.2005 16:00	17:30	1,5	350,0	CATU	OK	OK	Flushed seawater through choke line, closed shear ram and pressure tested 13 3/8" casing and wellhead connector to 150 bar, 10 min.
20.04.2005 17:30	19:00	1,5	350,0	BBFU	OK	OK	Tested accoustic by closing shear ram. Prevented kill, coke and glycol lines from freezing by blowing air through lines.
20.04.2005 19:00	21:00	2,0	,0	BBRU	OK	OK	Released dogs on inner barrel. Pulled up landing joint, and landed inner barrel in spider. LD landing joint and riser running tool.
20.04.2005 21:00	00:00	3,0	,0	BBRU	OK	OK	Held safety meeting with crew prior to install diverter. Installed diverter and performed 5 ton overpull test. Released diverter running tool and rigged down BOP handling equipment.
21.04.2005 00:00	04:30	4,5	,0	BBRU	OK	OK	Continued laying down BOP handling equipment.
21.04.2005 04:30	06:00	1,5	,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Await regulatory personell for final checks / authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping
21.04.2005 06:00	00:00	18,0	,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
22.04.2005 00:00	06:00	6,0	,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting

						authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
22.04.2005 06:00	00:00	18,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
23.04.2005 00:00	06:00	6,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
23.04.2005 06:00	00:00	18,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
24.04.2005 00:00	06:00	6,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
24.04.2005 06:00	00:00	18,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
25.04.2005 00:00	06:00	6,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
25.04.2005 06:00	00:00	18,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
26.04.2005 00:00	06:00	6,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Worked with hazid / hazop checks. Performed general rig maintenance, PM`s, cleaning and housekeeping.
26.04.2005 06:00	00:00	18,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
27.04.2005 00:00	06:00	6,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
27.04.2005 06:00	00:00	18,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop and dropped object findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
28.04.2005 00:00	06:00	6,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop and dropped object findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
28.04.2005 06:00	00:00	18,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop and dropped object findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
29.04.2005 00:00	06:00	6,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop and dropped object findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
29.04.2005 06:00	00:00	18,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop and dropped object findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
30.04.2005 00:00	06:00	6,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop and dropped object findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
30.04.2005 06:00	00:00	18,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop and dropped object findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
01.05.2005 00:00	06:00	6,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop and dropped object findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
01.05.2005 06:00	00:00	18,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop and dropped object findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
02.05.2005 00:00	06:00	6,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop and dropped object findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
02.05.2005 06:00	00:00	18,0	,0 ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting

							authorization to move ahead with operations. Corrected hazid / hazop and dropped object findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
03.05.2005 00:00	06:00	6,0	,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Awaiting authorization to move ahead with operations. Corrected hazid / hazop and dropped object findings. Performed general rig maintenance, PM`s, cleaning and housekeeping.
03.05.2005 06:00	10:30	4,5	,0	ZRUN	OK	OK	All drilling operations suspended due to hydraulic spill on April 12th. Got authorization to move ahead with operations.
03.05.2005 10:30	11:00	0,5	,0	BBOU	OK	OK	Held pre job safety meeting with all involved personell.
03.05.2005 11:00	12:30	1,5	,0	BBOU	OK	OK	Held toolbox meeting with drilling crew. PU 5 1/2" DP and performed diverter test.
03.05.2005 12:30	13:30	1,0	,0	DEOU	OK	OK	PU hang off stand. MU and racked back same. Checked and racked back same.
03.05.2005 13:30	17:30	4,0	350,0	BBDU	OK	OK	MU BOP test assembly w/ jet sub and 1 std 5 1/2" HW below. RIH on 5 1/2" DP and landed off in WH with 10 ton. Flushed K & C line w/ cement pumps. Lined up surface lines. Isolated off hazardious areas and made PA announcement prior to pressure testing BOP.
03.05.2005 17:30	18:30	1,0	350,0	BBOU	OK	OK	Due to change in wind direction, adjusted kill/choke goosnecks to avoid damage to the mux cables. Meanwhile, to check for any oil spill in the riser, slowly filled riser and took return to triptank via overflow line into chemical mix tank A. No oil observed.
03.05.2005 18:30	00:00	5,5	350,0	BBDU	OK	OK	Confirmed test tool seated correctly by closing upper annular and applying 35 bar down kill line. Commenced BOP test programme as per test procedure. Pressure tested BOP on blue pod to 35/150 bar, 5/10 minutes. Meanwhile, sample tested contents of trip tank for oil residue (OK).
04.05.2005 00:00	02:00	2,0	,0	BBFU	OK	OK	Continued to function test BOP on yellow pod. POOH and LD BOP test tool.
04.05.2005 02:00	05:00	3,0	,0	BBOU	OK	OK	RU to test surface equipment. Tested IBOP and mud hoses to 35/150 bar, 5/10 minutes. RD surface test equipment.
04.05.2005 05:00	06:00	1,0	,0	DTBU	OK	OK	MU 8 1/2" BHA and surface tested MWD tool, OK.
04.05.2005 06:00	10:30	4,5	250,0	DTBU	OK	OK	Continued MU 8 1/2" BHA.
04.05.2005 10:30	12:00	1,5	772,0	DTDU	OK	OK	RIH w/ 8 1/2" BHA on 8 std 5" DP and 5 1/2" DP. Tagged cement at 772 m with 6 ton.
04.05.2005 12:00	14:30	2,5	772,0	DDOU	OK	OK	Took SCR. Conducted choke drill with crew holding 16 bar on annulus.
04.05.2005 14:30	17:30	3,0	772,0	DCAU	OK	OK	Held toolbox meeting with involved personnel. Lined up and displaced well to 1,03 sg weighted drillwater. Re- instated overboard dump isolation prior to drill out the shoe track.
04.05.2005 17:30	00:00	6,5	799,0	CDDU	OK	OK	Drilled out cement in 13 3/8" casing with 2 - 6 T WOB, 40 - 80 RPM, 2 - 5 kNm, 2400lpm, 120 bar. Hard cement from 772 m. Drilled plugs/float from 774.5 m to 799 m. Drilled hard cement in shoe track. Pumped 5m3 hi-vis pill at 791 m.
05.05.2005 00:00	03:00	3,0	815,0	CDDU	OK	OK	Continued drilling out shoe track with 2 - 6 T WOB, 80 - 50 RPM, 2 - 3,5 kNm, 2400 lpm, 110 - 120 bar. Drilled out shoe, cleaned shoe track. Drilled rat hole and 4 m new formation to 815 m. Pumped 8,4 m3 hi-vis pill at 812 m.
05.05.2005 03:00	04:00	1,0	815,0	EXLU	OK	OK	Circulated hole clean. Spotted 10 m3 hi vis pill in open hole into 13 3/8" casing. POOH into 13 3/8" casing shoe. Meanwhile held prejob meeting with involved personnel.
05.05.2005 04:00	06:00	2,0	815,0	EXLU	OK	OK	Pressure tested surface lines against fail safe valves on C&K lines to 150 bar 5 min. Lined up to pump down drill pipe, kill and choke lines. Closed UAP, pressured up well to 5 bar. Performed LOT with 1,03 sg weighted drill water at 100 lpm. Pumped 189 ltr. Observed formation break down at 51 bar, 1.67 sg EMW. Monitored well pressure for 10 min, stabilzed at 38 bar. Bled down pressure to 5 bar, bled back 189 ltr.
05.05.2005 06:00	08:30	2,5	815,0	DCAU	OK	OK	Displaced choke, kill and booster lines and well to 1,33 sg Glydril WBM. Cleared cement and silt from header box. Took SCRs and performed flow back finger print with pumps off.
05.05.2005 08:30	09:00	0,5	818,0	DDRU	OK	OK	Drilled 8½" hole from 815 m MD to 818 m MD using 1-4 T WOB, 80 RPM, 2 - 5 kNm, 2380 lpm, 145 - 150 bar. Observed formation change on GR.
05.05.2005 09:00	09:30	0,5	818,0	DDOU	OK	OK	Observed 0,8 m³ pit gain. Shut in well with UAP and monitored on trip tank. Well static. Opened UAP.
05.05.2005 09:30	11:00	1,5	839,0	DDRU	OK	OK	Drilled 8½" hole from 818 m MD to 839 m MD using 1-4 T WOB, 80 RPM, 2 - 5 kNm, 2380 lpm, 145 - 150 bar. Observed formation change on GR.
05.05.2005 11:00	11:30	0,5	839,0	ECSU	OK	OK	Circulated bottoms up for samples.
05.05.2005 11:30	14:30	3,0	882,0	DDRU	OK	OK	Drilled 8½" hole from 839 m to 882 m with controlled ROP max 15 m/hr using 2 - 4 T WOB, 80 RPM, 2 -5 kNm, 24380 lpm, 152 bar. Observed fromation change with GR.
05.05.2005 14:30	15:30	1,0	882,0	ECSU	OK	OK	Flow checked - 15 mins. Well static. Circulated bottoms up for samples.
05.05.2005 15:30	16:00	0,5	887,0	DDRU	OK	OK	Drilled 8½" hole from 882 m to 887 m MD with controlled ROP - max 15 m/hr using 2 - 4T WOB, 80 RPM, 2 - 6 kNm, 2380 lpm, 150 bar.
05.05.2005 16:00	17:00	1,0	887,0	ECSU	OK	OK	Circulated bottoms up for samples.
05.05.2005 17:00	17:30	0,5	891,0	DDRU	OK	OK	Drilled 8½" hole from 887 m MD to 891 m MD with controlled ROP max 15 m/hr using 2 - 4 T WOB, 80 RPM, 2 - 6 kNm, 2380 lpm, 150 bar.
05.05.2005 17:30	18:00	0,5	891,0	ECSU	OK	OK	Circulated bottoms up for samples.
05.05.2005 18:00	19:00	1,0	814,0	DTRU	OK	OK	POOH for coring. Pulled from 891m MD. Observed 11 T OP. Pumped OOH to 814 m MD.
05.05.2005 19:00	19:30	0,5	891,0	DTDU	OK	OK	Decided to drill ahead. RIH to bottom at 891 m MD.

05.05.2005 19:30	20:00	0,5	891,0	DDOU	OK	OK	Observed 700 l gain in pit. Flow checked well on trip tank. Well stable.
05.05.2005 20:00	23:30	3,5	915,0	DDRU	OK	OK	Drilled 8½" hole from 891 m MD to 915 m MD with controlled ROP max 15 m/hr using 2 - 4 T WOB, 80 RPM, 2 - 6 kNm, 2380 lpm, 150 bar.
05.05.2005 23:30	00:00	0,5	915,0	ECSU	OK	OK	Circulated bottoms up from samples.
06.05.2005 00:00	01:00	1,0	915,0	ECSU	OK	OK	Continued circulating bottoms up for samples. Meanwhile performed biostratigraphic verification of samples.
06.05.2005 01:00	06:00	5,0	915,0	DTRU	OK	OK	Flow checked well. Stable. POOH for coring. Observed 13T overpull at 814 m. Wiped section with 1000 lpm. Flow checked at BOP. POOH to surface.
06.05.2005 06:00	07:00	1,0	,0	EECU	OK	OK	Cleared the drill floor. Held prejob safety meeting.
06.05.2005 07:00	09:30	2,5	56,0	EECU	OK	OK	PU and MU 54 m 4" x 6 3/4" core barrel assembly with 8½" core bit. Installed inner core barrels and spaced out for expansion.
06.05.2005 09:30	13:00	3,5	888,0	ETCU	OK	OK	RIH with 8½" core assembly to 888 m MD.
06.05.2005 13:00	14:00	1,0	915,0	ERCU	OK	OK	Washed down from 888 m MD to bottom at 915 m MD. Dropped ball and pumped down with 1000 lpm 20 bar. Observed ball seat and pressure increased to 38 bar. Performed SCR.
06.05.2005 14:00	16:30	2,5	949,0	ERCU	OK	OK	Cut core from 915 m MD to 949 m MD using 1 - 5 T WOB, 75 RPM, 4 - 8 kNm, 1000 lpm, 40bar. Observed torque drop to 2 kNm and pressure to 35 bar with bit on bottom, which indicated core jam.
06.05.2005 16:30	18:30	2,0	949,0	ECFU	OK	OK	Circulated bottoms up. Flow checked - well static.
06.05.2005 18:30	21:30	3,0	313,0	ETCU	OK	O FAIL	POOH with core barrel at controlled rate to 313 m MD. Flow checked at 13 3/8" casing shoe.
06.05.2005 21:30	22:00	0,5	313,0	RCOD	O FAIL	OK	Stand of drill pipe fell across derrick from finger board. Retrieved and secured properly in the finger board.
06.05.2005 22:00	00:00	2,0	58,0	ETCU	OK	OK	POOH with core barrel at controlled rate to 58 m MD - top of core barrel on surface. Flow checked at BOP on the way out.
07.05.2005 00:00	03:30	3,5	,0	EECU	OK	OK	Held prejob safety meeting with involved personnel on drill floor. Recovered inner barrels and LD inner barrels in 9 m sections. POOH and racked core barrels in derrick. Core recovery: 29.1 m, 85.6 %, 53.9 % utilization.
07.05.2005 03:30	05:30	2,0	,0	DTBU	OK	OK	PU 8½" drilling BHA. Broke out and LD Ontrak sub, cleaned and redressed connections. PU new Ontak sub and rebuilt 8½" BHA. Verified electrical connectivity.
07.05.2005 05:30	06:00	0,5	42,0	DTDU	OK	OK	RIH with 8½" drilling assembly to 42 m.
07.05.2005 06:00	08:30	2,5	949,0	DTDU	OK	OK	RIH with 8½" drilling BHA to 949 m MD. Tagged bottom 3 m high due to stump from coring. Washed down last stand. Took SCRs.
07.05.2005 08:30	11:30	3,0	949,0	ELDU	OK	OK	Reamed through cored section from 915 m MD to 949 m MD and logged with LWD tool at 20 m/hr sampling rate with 2380 lpm, 142 bar, 20 RPM, 3 kNm.
07.05.2005 11:30	20:30	9,0	1070,0	DDRU	OK	OK	Drilled 8½" hole from 949 m MD to 1070 m MD with controlled ROP max 15 m/hr using 1 - 3 T WOB, 70 - 110 RPM, 3 - 6 kNm, 2380 lpm, 152 bar. Observed formation change on LWD GR.
07.05.2005 20:30	22:00	1,5	1070,0	ECSU	OK	OK	Circulated bottoms up for samples. Meanwhile performed biostratigraphic verification of samples.
07.05.2005 22:00	23:00	1,0	1070,0	DTRU	OK	OK	Boosted the riser, flushed choke and kill lines. Flow checked well prior to POOH for coring. Well static.
07.05.2005 23:00	00:00	1,0	798,0	DTRU	OK	OK	POOH from 1070 m MD to 798 m MD. No drag in hole.
08.05.2005 00:00	00:30	0,5	798,0	DTRU	OK	OK	Flow checked well at 13 3/8" casing shoe - well static. Slugged drill string.
08.05.2005 00:30	04:00	3,5	,0	DTRU	OK	OK	POOH with 8½" drilling BHA to surface. LD premade MWD/LWD string. Cleared the drill floor.
08.05.2005 04:00	06:00	2,0	52,0	EECU	OK	OK	Held prejob meeting with involved personnel on the drill floor. MU 54 m 4" x 6 3/4" core barrel assembly with 8½" core bit. Installed inner barrels. Building coring BHA.
08.05.2005 06:00	09:30	3,5	1040,0	ETCU	OK	OK	RIH with 8½" core assembly to 1040 m MD. PU 1 single DP to space out string.
08.05.2005 09:30	10:00	0,5	1070,0	ERCU	OK	OK	Washed down to 1070 m MD. Dropped ball and pumped down with 1000 lpm 39 bar. Observed ball seat and pressure increase to 49 bar. Performed SCR.
08.05.2005 10:00	16:30	6,5	1118,0	ERCU	OK	OK	Cut core from 1070 m MD to 1118 m MD using 3 - 10 T WOB, 90 - 100 RPM, 3 - 8 kNm, 1000 lpm, 50 bar. No further penetration with increased WOB.
08.05.2005 16:30	18:00	1,5	1118,0	ECFU	OK	OK	Circulated bottoms up prior to POOH. Flow checked - well static.
08.05.2005 18:00	23:00	5,0	58,0	ETCU	OK	OK	POOH with core barrel at controlled rate to 58 m MD - top of core barrel on surface. Flow checked at 13 3/8" casing shoe and prior to entering the BOP on the way out.
08.05.2005 23:00	00:00	1,0	58,0	EECU	OK	OK	Held prejob safety meeting with involved personnel on the drill floor. Recovered and laid down 2 x 9 m sections of inner barrels.
09.05.2005 00:00	02:00	2,0	,0	EECU	OK	OK	Recovered and LD 4 x 9 m sections of inner barrels. POOH and racked core barrels in the derrick. Cleared the drill floor. Core recovery: 47,9m, 99,8%, 88,7% utilization.
09.05.2005 02:00	05:00	3,0	28,0	DTBU	OK	OK	PU 8½" drilling BHA. Repositioned modular stabilizer, cleaned and dressed connections. PU and MU APX tool to string. Verified electrical connectivity. Meanwhile flushed choke, kill and booster lines.
09.05.2005 05:00	06:00	1,0	200,0	DTDU	OK	OK	RIH with 8½" BHA to 200 m MD.
09.05.2005 06:00	08:00	2,0	1070,0	DTDU	OK	OK	RIH with 8½" drilling BHA from 200 m MD to 1070 m MD.
09.05.2005 08:00	11:30	3,5	1118,0	ELDU	OK	OK	Washed down and logged cored section from 1070 m MD to 1118 m MD with max 30

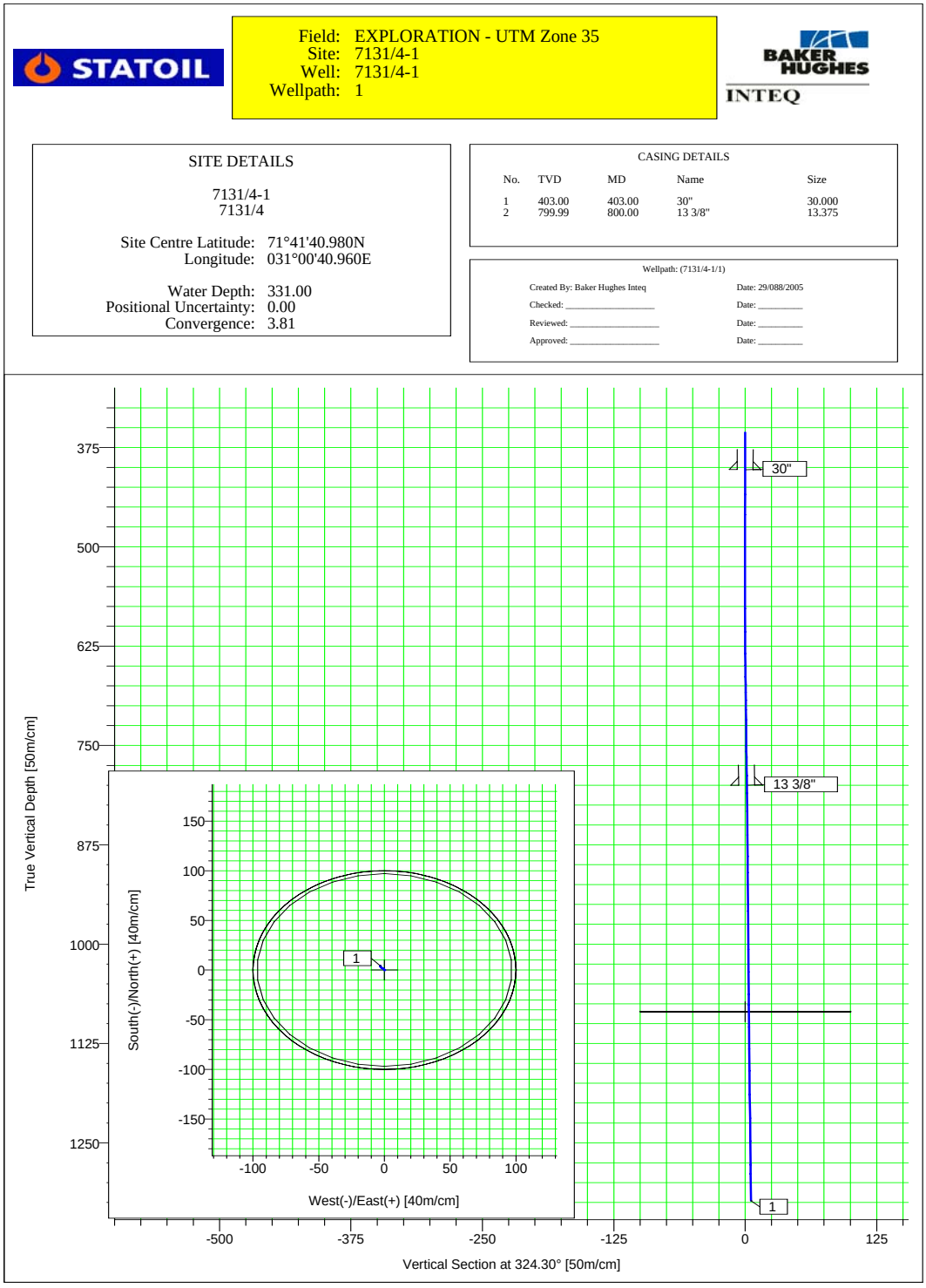
							m/hr using 2380 lpm, 166 bar, 30 - 90 RPM, 3 kNm, ECD 1,43 sg.
09.05.2005 11:30	13:30	2,0	1168,0	DDRU	OK	E FAIL	Drilled 8½" hole from 1118 m MD to 1168 m MD using 1 - 5 T WOB, 120 RPM, 6 - 3 kNm, 2370 lpm, 166 bar, ECD 1, 43 sg. Observed loose bolt on top drive.
09.05.2005 13:30	17:00	3,5	795,0	DERD	E FAIL	E FAIL	Unable to replace bolt. POOH to 795 m MD. Bit inside 13 3/8" casing. Fire alarm at mud process room.
09.05.2005 17:00	17:30	0,5	795,0	RCOD	E FAIL	OK	Deluge system energised and sprayed mud processing room with seawater due to false fire alarm.
09.05.2005 17:30	20:00	2,5	795,0	DERD	E FAIL	OK	Replaced bolt on top drive. Observed leakage on hydraulic hose coupling for top drive retract system during inspection after bolt replacement. Changed "o-ring" coupling.
09.05.2005 20:00	21:00	1,0	1168,0	DERD	E FAIL	OK	RIH to bottom. Confirmed levels of all pits in the active system.
09.05.2005 21:00	00:00	3,0	1206,0	DDRU	OK	OK	Drilled 8½" hole from 1168 m MD to 1206 m MD using 2 T WOB, 120 RPM, 6 - 3 kNm, 2370 lpm, 168 bar, ECD 1, 43 sg.
10.05.2005 00:00	06:00	6,0	1278,0	DDRU	OK	OK	Drilled 8½" hole from 1206 m MD to 1278 m MD using 1 - 5 T WOB, 120 RPM, 6 - 3 kNm, 2370 lpm, 170 bar, ECD 1, 44 sg. Reduced ROP from 20 m/hr to 15 m/hr due to cuttings handling capacity at the cuttings handling system.
10.05.2005 06:00	07:30	1,5	1295,0	DDRU	OK	OK	Drilled 8½" hole from 1278 m MD to 1295 m MD using 3 - 6 T WOB, 120 RPM, 4 - 6 kNm, 2370 lpm, 171 bar, 1,44 sg ECD.
10.05.2005 07:30	09:00	1,5	1295,0	DCAU	OK	OK	Circulated hole clean and conditioned mud prior to POOH for wireline logging. Flow checked - well stable.
10.05.2005 09:00	14:30	5,5	,0	DTLU	OK	OK	POOH to surface. Flow checked at 13 3/8" casing shoe and prior to entering the BOP on the way out. LD LWD/MWD tools.
10.05.2005 14:30	16:00	1,5	,0	EECU	OK	OK	PU core barrels from the derrick. Broke and LD the core barrels. Cleared the drill floor.
10.05.2005 16:00	18:00	2,0	,0	ELWU	OK	OK	RU to run wireline logs. Installed sheaves on the drill floor. Held prejob safety meeting. MU string for wireline logging run #1 PEXlite-DSI-GPIT. Installed RA sources in string.
10.05.2005 18:00	00:00	6,0	1295,0	ELWU	OK	OK	RIH. Performed wireline logging run #1 PEXlite-DSI-GPIT according to logging programme. POOH and retrieved RA sources in string.
11.05.2005 00:00	01:00	1,0	,0	ELWU	OK	OK	RD wireline logging string.
11.05.2005 01:00	02:30	1,5	,0	ELRU	OK	OK	MU string for wireline logging run # 2 MDT to take formation pressure measurement and fluid samples.
11.05.2005 02:30	06:00	3,5	1295,0	ELRU	OK	OK	RIH and perfromed depth correlation and recorded 8 pressure points.
11.05.2005 06:00	22:00	16,0	1295,0	ELRU	OK	OK	Recorded 17 formation pressure points and took fluid samples from 2 levels. Hole in good condition. No overpull after sampling.
11.05.2005 22:00	00:00	2,0	,0	ELRU	OK	OK	POOH logging run #2 - MDT tool string. Held prejob meeting on the drill floor. LD MDT string.
12.05.2005 00:00	06:00	6,0	250,0	ELWU	OK	OK	MU and RIH logging run # 3 - VSP. Tagged fill, stopped at 1282 m MD. Performed VSP and logged up according to programme. POOH to 250 m MD.
12.05.2005 06:00	06:30	0,5	,0	ELWU	OK	OK	POOH logging run #3 - VSP. RD VSP string.
12.05.2005 06:30	08:00	1,5	30,0	ELCU	OK	OK	RU for logging run #4 - CST for SWC. Changed logging head. Held prejob meeting on the drill floor.
12.05.2005 08:00	15:30	7,5	1268,0	ELCU	OK	OK	RIH logging run #4 - CST. On bottom at 1100 hrs. Performed SWC according to programme. Took 60 shots.
12.05.2005 15:30	16:30	1,0	,0	ELCU	OK	OK	POOH logging run #4 - CST. Recovered SWC. 59 shots full, 1 empty.
12.05.2005 16:30	18:00	1,5	,0	ELCU	OK	OK	RD wireline logging gear. Cleared the drill floor.
12.05.2005 18:00	21:30	3,5	320,0	PTPU	OK	OK	Installed 3½" DP handling gear on the top drive. PU 3½" DP singles, MU and RIH 3½" DP cement stinger. RD 3½" handling gear.
12.05.2005 21:30	00:00	2,5	900,0	PTTU	OK	OK	Installed BX elevator with 5" DP inserts. MU and RIH 21 stands 5" DP.
13.05.2005 00:00	02:00	2,0	1280,0	PTTU	OK	OK	Changed DP inserts to 5½" and RIH 5½" DP to 1280 m MD. Unable to pass 1280 m MD.
13.05.2005 02:00	03:00	1,0	1280,0	PCCU	OK	OK	Circulated bottoms up prior to pumping cement plugs with 2500 lpm 118 bar. Meanwhile, held prejob meeting on the drill floor.
13.05.2005 03:00	04:00	1,0	1280,0	PSSU	OK	OK	Pressure tested cement lines to 200 bar for 5 mins. Pumped 6 m³ 1,60 sg spacer ahead using the cement unit. Mixed and pumped 10,3 m³ 1,90 sg cement slurry at 650 lpm, 12 bar. Pumped 0,7 m³ spacer after using the cement unit. Displaced cement slurry with 6,7 m³ 1,33 sg mud with 2500 lpm 64 bar. Set balanced cement plug from 1280 m MD - 1015 m MD.
13.05.2005 04:00	05:00	1,0	984,0	PTTU	OK	OK	Disconnected cement stand. POOH to 984 m. String dry.
13.05.2005 05:00	06:00	1,0	984,0	PCCU	OK	OK	Circulated bottoms up with 2500 lpm, 112 bar.
13.05.2005 06:00	06:30	0,5	990,0	PSSU	OK	OK	MU cement stand to drill string. Pressure tested surface lines to 200 bar / 5 min.
13.05.2005 06:30	07:30	1,0	990,0	PSSU	OK	OK	Pumped 0,6 m³ 1,60 sg spacer rig floor with cement pumps. Pumed 5,4 m³ spacer ahead. Cleaned cement tank and held tool box talk with morning crew prior to cementing operations.
13.05.2005 07:30	08:30	1,0	990,0	PSSU	OK	OK	Mixed and pumped 16 m³ 1,90 sg cement slurry with cement unit using 650 lpm, 12 bar. Pumped 0,33 m³ spacer after. Displaced cement using rig pumps at 1700 lpm, 80 bar.
13.05.2005 08:30	09:00	0,5	872,0	PTTU	OK	OK	LD cementing stand. POOH to 872 m. Pulled wet on stand #3 out of hole and had mud back flow. Attempted to pump through string with mud pumps, no circulation: 300 bar SPP. String plugged.

13.05.2005 09:00	11:00	2,0	329,0	PTTU	OK	OK	POOH. Observed XO below the 5" DP plugged with cement.
13.05.2005 11:00	13:30	2,5	,0	PTPU	OK	OK	POOH . LD 3½" DP in singles. 3½" DP plugged with cement.
13.05.2005 13:30	00:00	10,5	,0	PSCW	OK	OK	Waited on cement. Meanwhile, slipped and cut 33 m drilling line.
14.05.2005 00:00	02:00	2,0	342,0	PSCW	OK	OK	Waited on cement. Meanwhile RIH with 5" mule shoe to 342 m MD.
14.05.2005 02:00	02:30	0,5	342,0	PAOU	OK	OK	Time out for safety. Held safety meeting on the drill floor due to incident involving a roughneck on the drill floor.
14.05.2005 02:30	03:30	1,0	743,5	PSSU	OK	OK	Continued RIH to 743,5 m MD. Tagged cement and set down 5 T weight on cement plug.
14.05.2005 03:30	05:00	1,5	743,5	PSSU	OK	O FAIL	Closed UAP. Lined up and pumped down DP, C & K lines to test cement plug. Pressured up well to 86 bar, pressure bled off to 51 bar in 6 mins.
14.05.2005 05:00	06:00	1,0	743,5	PAOD	O FAIL	OK	Checked surface lines. OK. Pressure tested well down choke line against UPR in stages to 60 bar, 75 bar and 100 bar. Pressure bled off and stabilized at 67 bar. Pumped 331 l, bled back 183 l.
14.05.2005 06:00	09:00	3,0	743,5	PAOD	O FAIL	OK	Circulated bottoms up at 3200 lpm, 48 bar while discussing options. Boosted riser at 1270 lpm
14.05.2005 09:00	09:30	0,5	743,5	PAOD	O FAIL	OK	Flowchecked. Well stable.
14.05.2005 09:30	11:30	2,0	,0	PAOD	O FAIL	OK	POOH. LD cement stinger and x-over.
14.05.2005 11:30	13:30	2,0	743,5	PAOD	O FAIL	OK	RIH open ended 5" DP from surface, took weight at 737 m. Washed down from 737 m to bottom.
14.05.2005 13:30	16:00	2,5	743,5	PAOD	O FAIL	OK	Circulated and conditioned mud, treated mud for cement contamination.
14.05.2005 16:00	16:30	0,5	743,5	PAOD	O FAIL	O FAIL	Performed pre-job meeting prior to cement operation. Ran down and tagged TOC at 743,5 m. Pressure tested surface lines to 200 bars. Not able to transfer cement from cement silo.
14.05.2005 16:30	17:00	0,5	743,5	RCOD	O FAIL	OK	Unblocked supply line from cement silo A to cement unit.
14.05.2005 17:00	19:00	2,0	743,5	PAOD	O FAIL	OK	Mixed and pumped 9.0 m3 1,60 sg spacer, 8,6 m3 1,90 sg cement slurry and 1.3 m3 1,60 sg Spacer with cement unit. Chased same with 350 litre drill water. Displaced cement with 4.15 m3 1,33 sg WBM at 1520 lpm/ 22 bars with mud pumps.
14.05.2005 19:00	19:30	0,5	743,5	PAOD	O FAIL	OK	LD cement stand and POOH to 600 m, pulled 3 first stands wet.
14.05.2005 19:30	20:30	1,0	600,0	PAOD	O FAIL	OK	Circulated bottoms up at 2500 lpm, 30 bars. Boosted riser with 2370 lpm. Estimated TOC at 630 m. Diverted 35 m3 cement contaminated mud out of the active system.
14.05.2005 20:30	21:30	1,0	289,0	PAOD	O FAIL	OK	POOH from 600 m to 289 m.
14.05.2005 21:30	22:30	1,0	289,0	PAOD	O FAIL	OK	Prepared for squeeze operation. Waited on cement unit, cleaning after last cement job was not completed. Aborted squeeze operation.
14.05.2005 22:30	00:00	1,5	,0	DTPU	OK	OK	Performed pre-job meeting. POOH from 289 m. LD 5" DP while tripping out.
15.05.2005 00:00	02:30	2,5	,0	DTPU	OK	OK	RIH 5" DP to 289 m. POOH while LD ramaining 10 stands of 5" DP.
15.05.2005 02:30	06:00	3,5	,0	PAOD	O FAIL	OK	WOC. Meanwhile: Worked on droped object list, performed PMs.
15.05.2005 06:00	09:00	3,0	,0	PAOD	O FAIL	OK	WOC. Meanwhile continued with dropped object defect list.
15.05.2005 09:00	10:30	1,5	,0	PTPU	OK	OK	MU 13 3/8" EZSV dressed as bridge plug to 5 1/2" DP.
15.05.2005 10:30	11:00	0,5	288,0	PTTU	OK	OK	RIH 13 3/8" EZSV bridge plug to 288 m.
15.05.2005 11:00	18:30	7,5	288,0	PAOD	O FAIL	OK	WOC. Meanwhile continued with dropped object defect list. Pressure tested surface lines to 35 bars / 5 min and 200 bars / 10 min.
15.05.2005 18:30	19:30	1,0	288,0	PAOD	O FAIL	OK	Lined up cement unit on well, closed BSR and pressure tested cement plug #3 in stages to 100 bars. Volume pumped 170 l, volume bled back 140 l.
15.05.2005 19:30	20:30	1,0	600,0	PTTU	OK	OK	Opened BSR and RIH 13 3/8" EZSV from 288 m to 600 m. Ran through BOP with compensator activated.
15.05.2005 20:30	22:00	1,5	600,0	PSMU	OK	OK	Set 13 3/8" EZSV according to Halliburton procedure, used 20 MT overpull to shear out RT. Pressure tested EZSV in stages to 100 bars / 15 min. Volume pumped 110 l, volume bled back 110 l.
15.05.2005 22:00	23:30	1,5	600,0	PCCU	OK	OK	Performed pre-job meeting. Displaced Booster, K&C lines and surface equipment to sea water. Displaced drill string and well to sea water.
15.05.2005 23:30	00:00	0,5	600,0	PSSU	OK	OK	Spaced out drill string and MU cement stand. Performed pre-job meeting prior to cementing.
16.05.2005 00:00	01:00	1,0	600,0	PSSU	OK	OK	Cleaned out surface pits. Lined up and tested surface lines.
16.05.2005 01:00	01:30	0,5	600,0	PSSU	OK	OK	Mixed and pumped 15,5 m³ 1,90 sg cement slurry at 700 lpm 5 bar. Chased cement up to the drill floor with 300 l. Displaced cement with 4,1 m³ SW. Set balanced cement plug from 600 m MD to 400 m MD.
16.05.2005 01:30	02:30	1,0	365,0	PTTU	OK	OK	POOH from 600 m Md to 365 m MD.
16.05.2005 02:30	03:00	0,5	365,0	PCCU	OK	OK	Dropped 2 wiper balls. Circulated bottoms up using SW at 2500 lpm down DP, 2500 lpm down C& K lines, 25 bar.
16.05.2005 03:00	04:00	1,0	,0	PTTU	OK	OK	POOH to surface. LD EZSV RT.
16.05.2005 04:00	06:00	2,0	300,0	BHRU	OK	OK	MU 5½" jetting sub to 1 stand 5½" DP. MU MPT and RIH to retrieve the wear bushing. Washed well head area on the way in.
16.05.2005 06:00	09:00	3,0	,0	BHRU	OK	OK	RIH MPT to WH, worked string and washed WH area with 2500 lpm - DP and 2500 lpm - C&K lines, 35 bar. Landed and set down 8 T with active heave compensator and engaged wearbushing. Pulled wear bushing free with 23 T overpull. POOH. LD wear bushing and MPT.

16.05.2005 09:00	09:30	0,5	,0	BBRU	OK	OK	Cleared the drill floor. Held prejob meeting. Checked crown saver and performed brake test on draw works.
16.05.2005 09:30	12:30	3,0	,0	BBRU	OK	OK	RU riser handling gear. Changed 500 T elevator and bails to 750 T. Installed riser handling sub hydraulic piston and lines. Changed jaw on drill floor manipulator arm. Removed master bushing and installed gimbal and riser spider.
16.05.2005 12:30	14:30	2,0	,0	BBRU	OK	OK	Installed diverter running tool, pull tested to confirm latch, released diverter dogs and pulled up to drill floor. Cleaned diverter.
16.05.2005 14:30	17:00	2,5	,0	BBRU	OK	OK	PU and MU landing joint to slip joint. Collapsed slip joint inner barrel. Meanwhile dived ROV to seabed. Unlatched BOP from WH @ 1645 hrs. Moved rig 30 m port from WH.
16.05.2005 17:00	21:00	4,0	,0	BBRU	OK	OK	Held tool box talk on removal of choke, kill and booster line goose necks. Removed goose necks.
16.05.2005 21:00	21:30	0,5	,0	BBRU	OK	OK	PU and secured MRT support ring to diverter housing.
16.05.2005 21:30	22:00	0,5	,0	BBRU	OK	OK	Held tool box talk for riser pulling operations.
16.05.2005 22:00	22:30	0,5	314,0	BBRU	OK	OK	Laid out landing joint. Removed MUX cable clamps from slip joint.
16.05.2005 22:30	00:00	1,5	251,0	BBRU	OK	OK	Laid out slip joint. Pulled BOP/Riser to 251 m. LD 5ft, 50 ft and 75 ft riser joints.
17.05.2005 00:00	03:30	3,5	50,0	BBRU	OK	OK	Pulled BOP/Riser from 251 m to 50 m at 3 joints / hr, LD 9 ea 75 ft riser joints.
17.05.2005 03:30	04:00	0,5	,0	BBRU	OK	OK	Held tool box talk. Pulled BOP through the splash zone with 70 ft and 30 ft risers.
17.05.2005 04:00	06:00	2,0	,0	BBRU	OK	OK	Landed BOP in carrier @ 0535 hrs and split BOP from the riser.
17.05.2005 06:00	06:30	0,5	,0	BBRU	OK	OK	Laid out 70' and 30' riser joints.
17.05.2005 06:30	10:00	3,5	,0	BBRU	OK	OK	Held tool box talk. Rigged down riser running gear. Cleared the drill floor.
17.05.2005 10:00	12:30	2,5	311,0	PACU	OK	OK	PU MOST tool. MU and RIH with casing cutting assembly to 311 m. Meanwhile moved rig back to location.
17.05.2005 12:30	14:00	1,5	361,0	PACU	OK	OK	Adjusted rig position and stabbed into wellhead with ROV assistance. Landed and engaged MOST tool in WH.
17.05.2005 14:00	16:00	2,0	361,0	PACU	OK	OK	Cut 20" x 30" casing pumping SW at 2700 - 3400 lpm, 81 - 146 bar. Clean cut through 20" casing and 30" conductor. No overpull used to pull casing.
17.05.2005 16:00	00:00	8,0	,0	MARU	OK	OK	Commenced anchor handling operations while deballasting rig. Pulled anchors #7, #2 and #6. Meanwhile POOH MOST tool and cut casing. Released cut casing from MOST tool. LD cut casing and MOST tool. Recovered marker bouys with ROV.
18.05.2005 00:00	06:00	6,0	,0	MARU	OK	OK	Continued deballasting rig and anchor handling operations. Anchors #3 and #5 on bolster. Pulling anchors # 1 and #4. Meanwhile laid out 8¼" DCs and 5½" HWDP from the derrick.
18.05.2005 06:00	11:00	5,0	,0	MARU	OK	OK	Continued anchor handling operations. Pulled anchor # 1, 4 and 8. Meanwhile put lift ring cross for handling MRT ring on to 100 ton dolly.
18.05.2005 11:00	18:00	7,0	,0	MARU	OK	OK	Continued anchor handling operations. Pulled anchor #8. Meanwhile released MRT ring from diverter housing and located ring to port aft moonpool.
18.05.2005 18:00	22:00	4,0	,0	MARU	OK	OK	Backloaded equipment to anchorhandler vessels. Meanwhile laid out cement stand and removed excess equipment from rig floor. End of operation on well NO 7131/1-4 at 2200 hrs. Rig released to well NO 6302/6-1, Tulipan.

App B Well trajectory

B.1 Well plot



B.2 Well survey listing

Company:	STATOIL - Norway			**Date:**	29/066/2005	**Time:**	09:57:15 **Page:** 1
Field:	EXPLORATION - UTM Zone 35			**Co-ordinate(NE) Reference:**	Site: 7131/4-1, Grid North		
Site:	7131/4-1			**Vertical (TVD) Reference:**	SITE 25.0		
Well:	7131/4-1			**Section (VS) Reference:**	Well (0.00N,0.00E,324.30Azi)		
Wellpath:	1			**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle

Field:	EXPLORATION - UTM Zone 35		
	Norway		
Map System:	Universal Transverse Mercator	**Map Zone:**	UTM Zone 35, North 24E to 30E
Geo Datum:	ED50 (International 1924)	**Coordinate System:**	Site Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	bggm2005

Site:	7131/4-1						
	7131/4						
Site Position:		**Northing:**	7959770.00 m	**Latitude:**	71 41 40.980 N		
From:	Geographic	**Easting:**	640534.60 m	**Longitude:**	31 0 40.960 E		
Position Uncertainty:	0.00 m			**North Reference:**	Grid		
Water Depth:	331.00 m			**Grid Convergence:**	3.81 deg		

Well:	7131/4-1				**Slot Name:**		
	Guovca						
Surface Position:	**+N/-S**	0.00 m	**Northing:**	7959770.00 m	**Latitude:**	71 41 40.980 N	
	+E/-W	0.00 m	**Easting :**	640534.60 m	**Longitude:**	31 0 40.960 E	
Position Uncertainty:		0.00 m					
Reference Point:	**+N/-S**	0.00 m	**Northing:**	7959770.00 m	**Latitude:**	71 41 40.980 N	
	+E/-W	0.00 m	**Easting :**	640534.60 m	**Longitude:**	31 0 40.960 E	
			Measured Depth:	356.00 m	**Inclination:**	0.00 deg	
			Vertical Depth:	356.00 m	**Azimuth :**	0.00 deg	

Wellpath:	1		**Drilled From:**	Well Ref. Point	
	Guovca		**Tie-on Depth:**	356.00 m	
Current Datum:	SITE	**Height** 25.00 m	**Above System Datum:**	Mean Sea Level	
Magnetic Data:	27/1010/2004		**Declination:**	13.79 deg	
Field Strength:	54200 nT		**Mag Dip Angle:**	79.44 deg	

Vertical Section:	**Depth From (TVD)** m	**+N/-S** m	**+E/-W** m	**Direction** deg
	356.00	0.00	0.00	324.30

Survey Program for Definitive Wellpath
Date: 13/066/2005 **Validated:** Yes **Version:** 2

Actual From m	**To** m	**Survey**	**Toolcode**	**Tool Name**
356.10	1289.10	7131/4-1 MWD (356.10-1289.10)	Magnetic, std, mag-corr	Magnetic Tools (MWD, EMS)

Survey

MD m	**Incl** deg	**Azim** deg	**TVD** m	**+N/-S** m	**+E/-W** m	**Map Northing** m	**Map Easting** m	**<---- Latitude ----> Deg Min Sec**	**<---- Longitude ----> Deg Min Sec**
356.00	0.00	0.00	356.00	0.00	0.00	7959770.00	640534.60	71 41 40.980 N	31 0 40.960 E
356.10	0.00	0.00	356.10	0.00	0.00	7959770.00	640534.60	71 41 40.980 N	31 0 40.960 E
434.00	0.18	152.60	434.00	-0.11	0.06	7959769.89	640534.66	71 41 40.976 N	31 0 40.965 E
459.40	0.11	42.97	459.40	-0.13	0.09	7959769.87	640534.70	71 41 40.976 N	31 0 40.969 E
490.00	0.21	82.60	490.00	-0.10	0.17	7959769.90	640534.77	71 41 40.977 N	31 0 40.977 E
518.70	0.15	128.04	518.70	-0.11	0.25	7959769.88	640534.85	71 41 40.976 N	31 0 40.985 E
546.30	0.23	33.18	546.30	-0.09	0.31	7959769.91	640534.91	71 41 40.976 N	31 0 40.991 E
577.50	0.17	335.77	577.50	0.00	0.32	7959770.00	640534.93	71 41 40.979 N	31 0 40.993 E
607.00	0.21	278.15	607.00	0.05	0.25	7959770.05	640534.86	71 41 40.981 N	31 0 40.986 E
634.40	0.44	314.88	634.40	0.13	0.13	7959770.13	640534.73	71 41 40.984 N	31 0 40.974 E
663.70	0.54	327.54	663.70	0.33	-0.03	7959770.33	640534.58	71 41 40.991 N	31 0 40.960 E
693.00	0.42	297.69	693.00	0.50	-0.20	7959770.49	640534.41	71 41 40.996 N	31 0 40.944 E
717.20	0.59	308.34	717.20	0.61	-0.37	7959770.61	640534.23	71 41 41.001 N	31 0 40.926 E
750.25	0.65	302.27	750.24	0.82	-0.66	7959770.82	640533.94	71 41 41.008 N	31 0 40.898 E
779.10	0.53	335.45	779.09	1.03	-0.86	7959771.03	640533.75	71 41 41.015 N	31 0 40.879 E
788.00	0.57	310.86	787.99	1.10	-0.91	7959771.09	640533.70	71 41 41.017 N	31 0 40.875 E
832.60	0.45	322.64	832.59	1.38	-1.18	7959771.38	640533.42	71 41 41.027 N	31 0 40.848 E
862.50	0.46	321.59	862.49	1.57	-1.33	7959771.56	640533.28	71 41 41.033 N	31 0 40.835 E
889.60	0.42	313.22	889.59	1.72	-1.47	7959771.72	640533.14	71 41 41.039 N	31 0 40.822 E
910.00	0.42	311.48	909.99	1.82	-1.58	7959771.82	640533.03	71 41 41.042 N	31 0 40.811 E
1006.60	0.30	309.30	1006.59	2.22	-2.04	7959772.21	640532.57	71 41 41.056 N	31 0 40.766 E
1034.80	0.32	310.80	1034.79	2.31	-2.16	7959772.31	640532.45	71 41 41.059 N	31 0 40.755 E
1063.30	0.32	311.70	1063.29	2.42	-2.28	7959772.42	640532.33	71 41 41.063 N	31 0 40.744 E
1076.40	0.39	313.22	1076.38	2.47	-2.34	7959772.47	640532.27	71 41 41.065 N	31 0 40.738 E

Company:	STATOIL - Norway	**Date:**	29/088/2005	**Time:**	09:57:15	**Page:**	2
Field:	EXPLORATION - UTM Zone 35	**Co-ordinate(NE) Reference:**	Site: 7131/4-1, Grid North				
Site:	7131/4-1	**Vertical (TVD) Reference:**	SITE 25.0				
Well:	7131/4-1	**Section (VS) Reference:**	Well (0.00N,0.00E,324.30Azi)				
Wellpath:	1	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Oracle		

Survey

MD m	Incl deg	Azim deg	TVD m	+N/-S m	+E/-W m	Map Northing m	Map Easting m	<---- Latitude ----> Deg	Min	Sec		<---- Longitude ----> Deg	Min	Sec	
1132.00	0.49	324.04	1131.98	2.80	-2.61	7959772.79	640531.99	71	41	41.076	N	31	0	40.712	E
1159.20	0.48	330.36	1159.18	2.99	-2.74	7959772.99	640531.87	71	41	41.082	N	31	0	40.700	E
1188.90	0.49	339.82	1188.88	3.22	-2.84	7959773.21	640531.76	71	41	41.090	N	31	0	40.691	E
1218.90	0.50	340.91	1218.88	3.46	-2.93	7959773.46	640531.67	71	41	41.098	N	31	0	40.684	E
1247.80	0.50	341.71	1247.78	3.70	-3.01	7959773.70	640531.59	71	41	41.106	N	31	0	40.677	E
1277.50	0.55	348.58	1277.48	3.96	-3.08	7959773.96	640531.52	71	41	41.114	N	31	0	40.672	E
1289.10	0.54	350.79	1289.08	4.07	-3.10	7959774.07	640531.51	71	41	41.118	N	31	0	40.670	E
1323.00	0.54	350.79	1322.98	4.39	-3.15	7959774.38	640531.45	71	41	41.128	N	31	0	40.667	E

App C Contractors

C.1 List of contractors

SERVICE	**COMPANY**
Base Service	Polarbase
Casing cutting	Weatherford Norge AS
Casing running	Weatherford Norge AS
Cementing	Halliburton AS
Conventional Coring	Baker Hughes Norge A/S
Cuttings Removal	KMC Oiltools NUF
Directional Drilling	Baker Hughes Norge A/S
Drilling Contractor	Ocean Rig ASA
Drilling Fluids	M-I Norge AS
Electric Logging	Schlumberger offshore services
Helicopters	Norsk Helikopter AS
Helicopter Booking	Lufttransport (Statoil)
Lab Services	ResLab Reservoir Laboratories
Mud Logging	Schlumberger Norge AS (Geoservices)
MWD	Baker Hughes Norge A/S
Rig Positioning	Fugro survey A/S
ROV	Oceaneering AS
Transportation	Nor-Cargo As, Bergen
Wellhead	Dril-Quip (Europe) ltd – NUF.